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THE PAPER INDUSTRY

A MONTHLY EDUCATIONAL JOURNAL JUNE, 1932

THE DODGE HYPOID DRIVE

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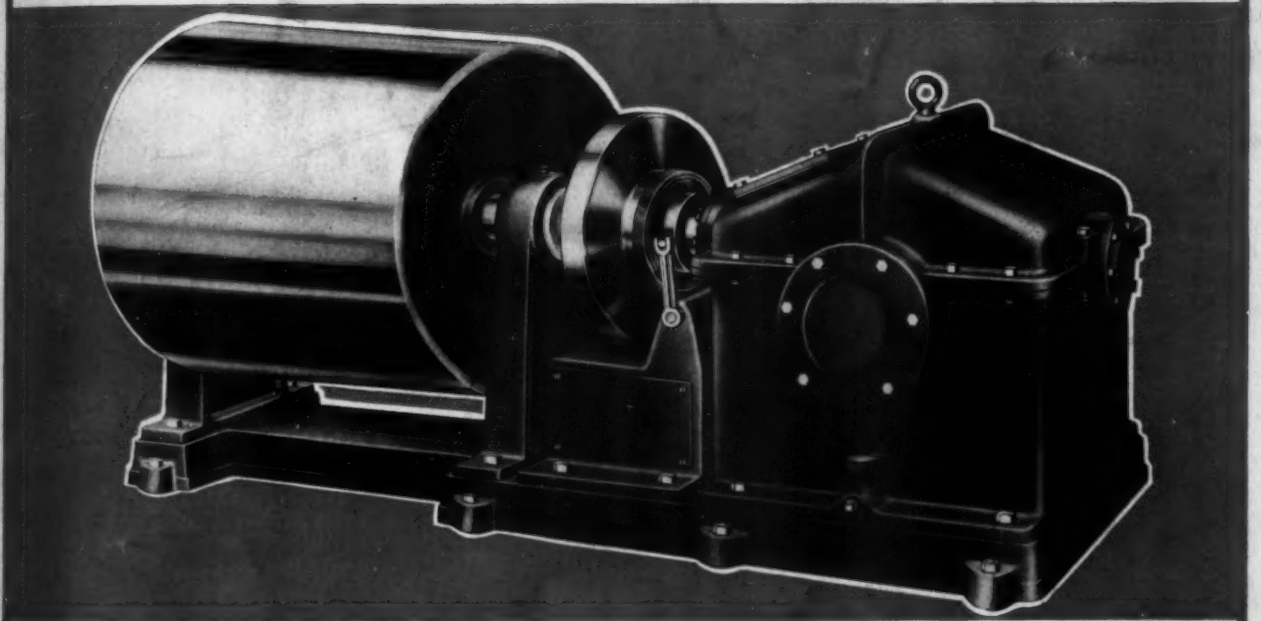

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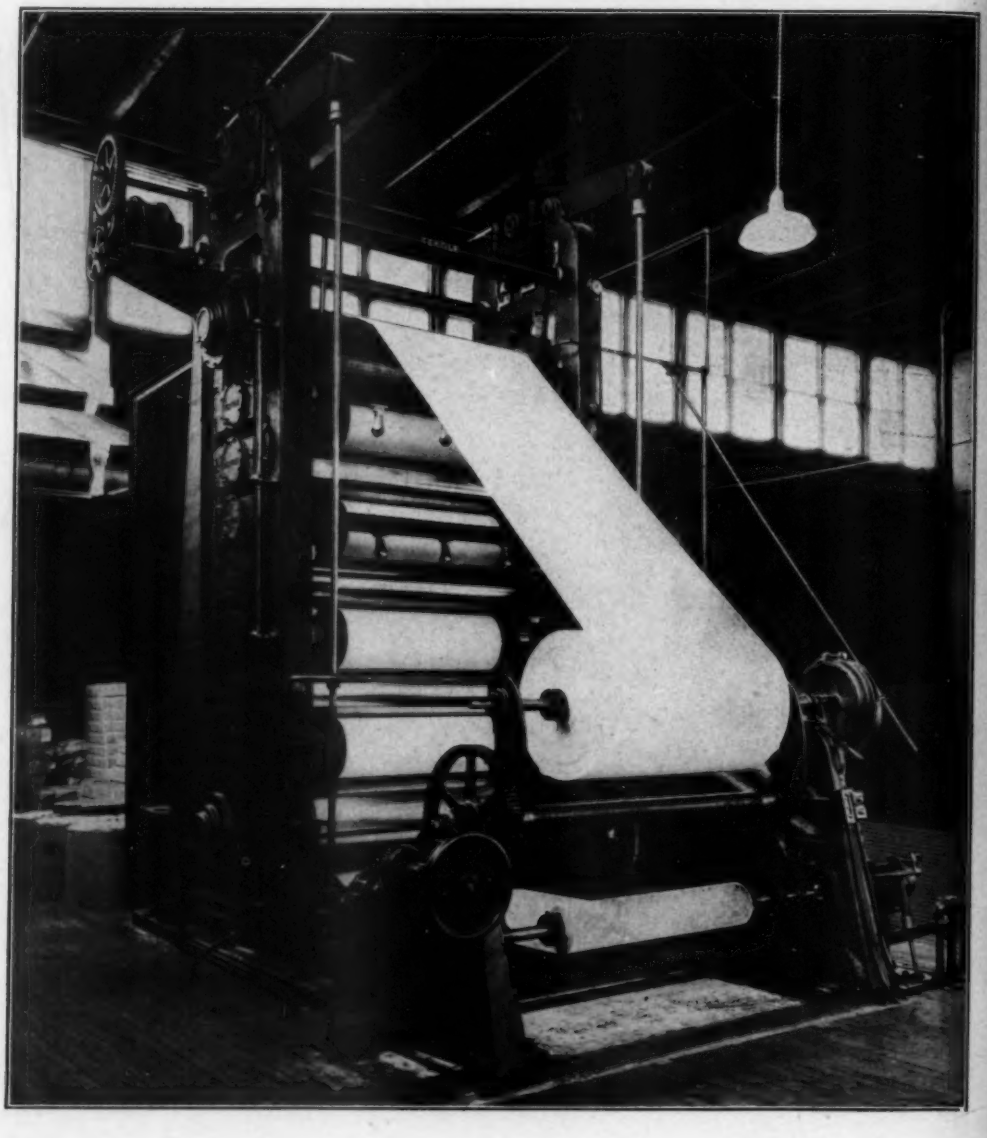

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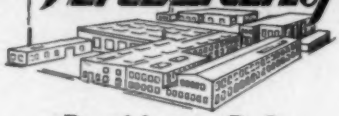

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THE PAPER INDUSTRY

A MONTHLY EDUCATIONAL JOURNAL

Devoted to the Interests of the Pulp and Paper Industry

JUNE, 1932 VOL. XIV No. 3

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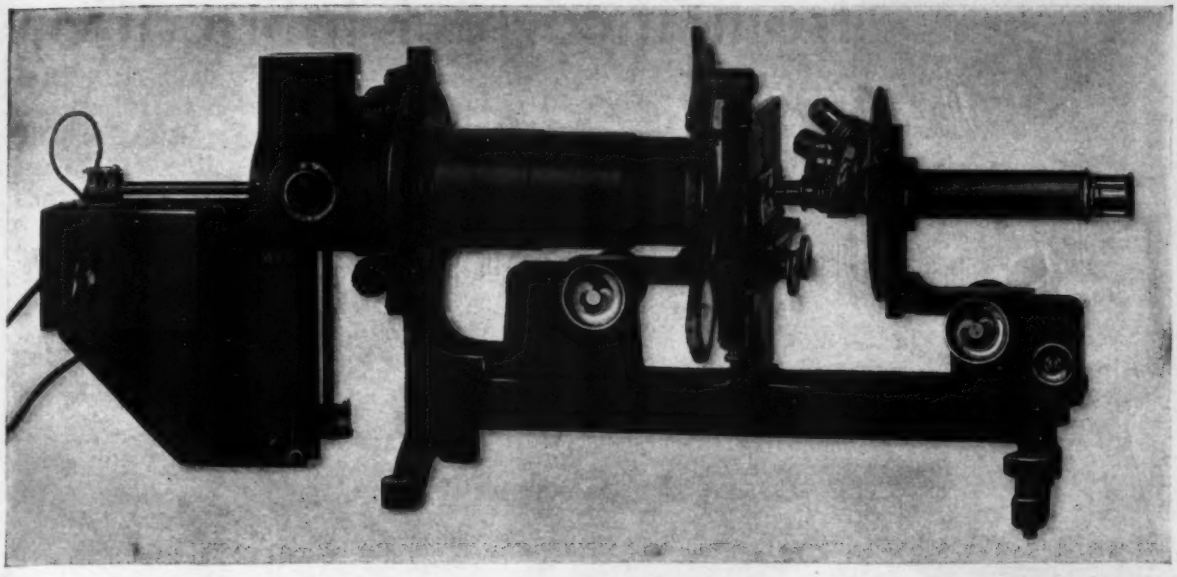
Controlled Beating Insures Uniform Quality and Consistent Profits . . .



THE new B & L Micro-Projector gives you a simple means of quick, constant and accurate control of the beating process. One man or a group can see in the microscopic enlargement of the sample the exact distribution, length and amount of "brooming" of the fibres.

No other method of evaluation gives so much information so quickly. When you actually *see* the condition of the beaten stock, guesswork is eliminated. That's the kind of control that lowers mill overhead, that puts certainty into the beating process and safeguards profits with a consistently uniform paper.

This B & L Micro-Projector is now in profitable use in many leading paper mills. Built ruggedly to stand constant use and *stay in adjustment*. Easily portable . . . use it in the "lab", beater room or offices at will. The operation is simple. Reliable results can be secured by anyone with a knowledge of fibre microscopy. The price on this paper mill model is attractive. Clip the coupon to your letterhead and mail today for detailed information. You'll find it interesting.

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5 causes of hot motor bearings result directly or indirectly from incorrect lubrication

HOT bearings are one of the most frequent reasons for electric motor trouble. Of the ten major causes of hot bearings, five result directly or indirectly from lubrication. What these lubrication troubles are and how to remedy them is explained in a technical monograph on electric motor lubrication being published this month by the Standard Oil Company (Indiana) which is available upon request.

Any lubrication remedy for hot motor bearings, any hope of trouble free motor lubrication depends upon effective lubricants. So wide is the variety of electric motors and so varied are the conditions under which they operate that in order to meet every possible lubrication requirement, we have developed thirteen distinct electric motor lubricants.

Under most normal operating conditions, Superla Dynamo Oil, Polar Machine Oil or Superla X Greases will provide efficient, economical motor lubrication. They are highly refined pure mineral lubricants. All are unusually stable and resist sludging and gumming during continuous use over long periods of time.

If you have any hot running motors in your plant the trouble may be lubrication. Our engineers can tell quickly whether the lubrication is at fault—call in one of these men. His recommendations backed by years of experience plus the added advantage of a wide range of approved lubricants assures you of effective, economical motor lubrication.

MONOGRAPHS ON LUBRICATION

Each month the Standard Oil Company (Indiana) publishes a technical monograph on the lubrication of some particular type of equipment. Three monographs already have been published. They are "Reducing Lubrication Costs," "Lubricating the Corliss Valve Steam Engine," "Electric Motor Lubrication." A copy of any or all monographs will be sent to you at your request.

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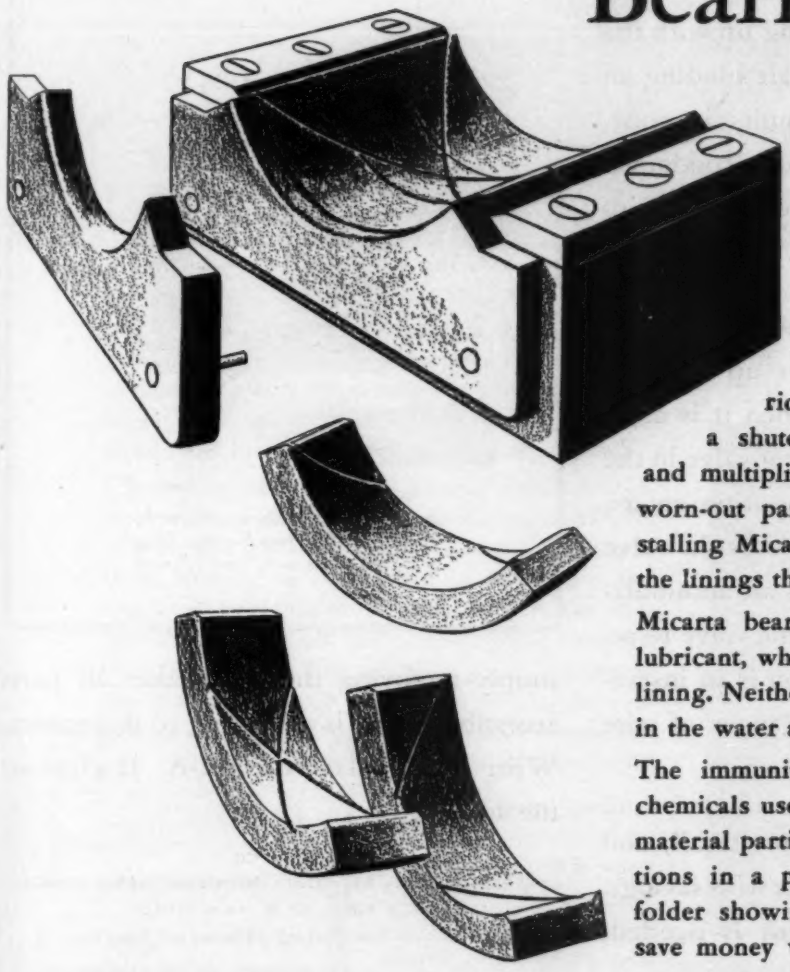
MICARTA LININGS *increase* Bearing Life



SHORT-LIVED bearings pile up maintenance expense. But what is more serious, every bearing failure causes a shutdown which halts production and multiplies many times the cost of the worn-out part. Reduce such losses by installing Micarta linings in your housings—the linings that last longer.

Micarta bearings require only water as a lubricant, which does not warp or swell the lining. Neither will acid nor alkali impurities in the water affect it.

The immunity of Micarta to most of the chemicals used in paper-making adapts this material particularly to a number of applications in a paper mill. Let us send you a folder showing a few of the possibilities to save money with Micarta. Mail the coupon.

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Firm.....

Address.....

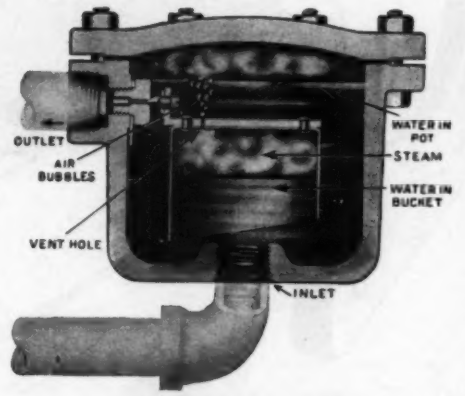
City.....*State*..... PI 6-32

Now it's cheaper to drain small steam units

THE last reason for putting up with the inefficiency, waste, and air binding of wet steam in small steam units is gone. Draining them has been made economical and practical by the new series of Crane inverted open float steam traps.

The operation of these traps is simple in the extreme. Condensation flows up into the trap until the body is full; then it is automatically discharged through a valve in the top. When no more condensation enters, the float becomes buoyant, closes the valve and stops the discharge until an accumulation of condensation causes the valve to reopen. This cycle of operation is so instantaneous that practically all danger of wire drawing is eliminated.

These traps cost very little to install, and more than pay for maintenance with savings. When any slight adjustment is needed, simply removing the cap makes all parts accessible; there is no piping to disconnect. Write for circular No. 242-A. It gives all the details.



Sectional view of the new Crane inverted open float trap No. 981. These traps are made in ½" and ¾" sizes.

CRANE CO.
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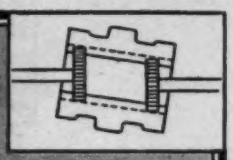
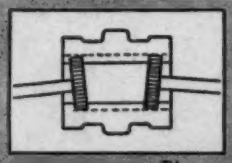
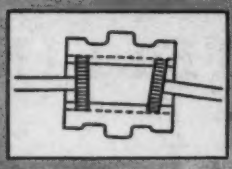
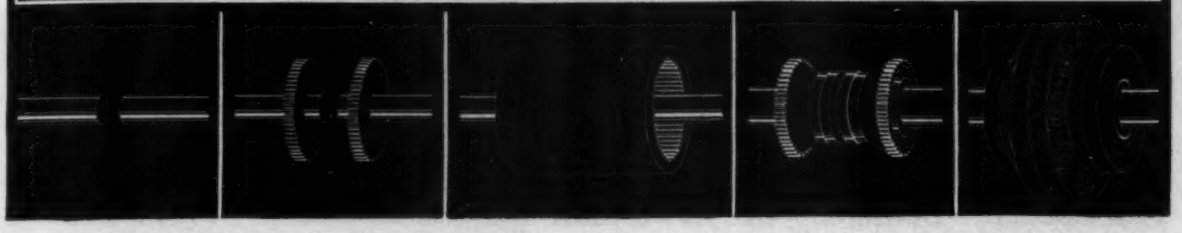
See How FAST'S *let you say Good-Bye to* COUPLING SHUT-DOWNS







These exaggerated diagrams show how all forms of misalignment are compensated for between the lubricated faces of the gear teeth. Note how the entire assembly rotates as a unit.

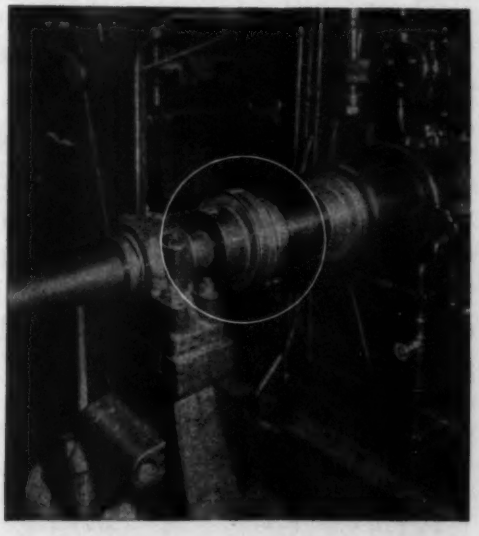


THE diagrams will show you how Fast's Coupling does away with all flexible pins, grids, washers, discs, or springs. And by substituting the simple mechanical assembly illustrated, for parts that might fatigue and breakdown, Fast's has made coupling shut-downs, and losses from them, a thing of the past.

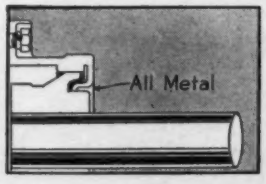
How simply Fast's Coupling works! Shaft misalignment is compensated for between the lubricated teeth of generated gears. Oil carries the load. Nothing to wear. Nothing to flex, fatigue or fail. Not a part that must be replaced periodically with attendant loss of time. Just oil Fast's Self-Aligning Coupling from time to time like any other piece of transmission machinery, and it will last as long as the connected machines—with no possibility of shut-downs.

Specify Fast's Couplings on all new equipment for your plant. It will free you from coupling trouble. Write for catalog showing a Fast's Coupling for almost every need of industry.

Above is shown the simple development of Fast's Self-Aligning Coupling. A spur gear on each shaft end, a sleeve with internal gears to mesh. Oil in the sleeve carries the load.



Fast's Self-Aligning Coupling at the Camas Mill, Crown-Willamette Paper Co., Camas, Washington.



Permanently Dust Proof

Not a single flexible material, not a single rubber or felt washer is used in Fast's Coupling. All metal to metal contact prevents dust, grit, fumes or moisture from getting into the working assembly. Due to this exclusive Fast's principle, Fast's Couplings never cause shut-downs because of internal wear due to foreign substances.

FAST'S *Self Aligning* COUPLINGS

THE BARTLETT HAYWARD COMPANY

SCOTT & McHENRY STS., BALTIMORE, MD.

REDS	1	0	2	1	0	0	2	0	2	8
BLUES	0	0	1	1	0	1	0	1	0	4

RESULTS

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In the final analysis, it's what a belt *has* done that counts. What a belt *should* do is the salesman's story . . . what it actually *does* is the buyer's answer.

Test Special—Beltpaco—are more than trade names of well known belts. They represent eighty-six years of conscientious designing and building of quality mechanical rubber goods. They are typical in every way of all products of the New York Belting & Packing Company.

N. Y. B. & P. Belts have met Industry's hardest tests for generations. Their reputation for endurance, service and economy have grown from a foundation of dependable workmanship. They come to you as finished products of a great builder of belting. Why Speculate.

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The Budget Is Balanced

"AT LAST!"

That was the sigh which escaped the suffering citizens of the country, when on June 4th, the news was flashed across the country that Congress had finally passed the tax bill and balanced the national budget.

And what a balancing act it is!

Everybody is mad.

The only people who are glad are those far-visioned citizens who realize that it was not only the best bill such a Congress could produce, but also, it was the only bill to be had in order to balance the budget forthwith.

Every taxpayer is incensed.

For six long bitter months, the most critical deflationary period in the nation's history, business men and over-burdened taxpayers had petitioned Congress to cut taxes, shear expenses, eliminate obsolete bureaus, reduce governmental costs, stop wastes, speed relief, balance the budget and go home.

But they would not.

Never in history, has the country been saddled with such a muddle-headed, benighted, reactionary, willfully destructive brood of misrepresentatives. Impervious to all appeals, stone-blind to all economic signs and trends of the times, oblivious to all interests, except those of their payroller relatives, their bureaucratic friends, and their taxeating affiliates, this present Congress rambled aimlessly along, like one of Ford's old Model T's back in the gay nineties.

When Congress assembled in December last, a billion dollars would have balanced the national budget, stopped deflation, turned business upward, put men to work again and put the country back on the road to prosperity.

By the end of May, a billion and a half dollars was needed to balance the budget, a deflation of ten billions of dollars in invested wealth had taken place, eight million men were out of employment, the foreign nations, rightly interpreting the "soak-the-rich" policy of Congress, got scared and renewed their withdrawal of gold from our treasury and the whole country was shrieking for relief, when the President of the United States suddenly appeared before the Senate and called upon them to recognize the critical emergency confronting them.

Hence, the iniquitous tax bill—a compromise bill—a bunk bill.

However, it does balance the budget.

Deflation has stopped.

The emergency is passed.

The country's business is saved.

But—there is a day of reckoning coming.

The debunking of Congress will now command the active energy of the outraged voters, taxpayers and deflated citizens of the country.

This is the open season for hunting heedless congressional heads.

While we are penning these lines, the returns from Iowa show how thoroughly the taxpayers of that commonwealth are debunking Brookhart.

Oh, there is a long list of these pork-barrel, shotgun practicing legislators on the list. They never will be missed.

Let no one despair. The tax bill is the bunk and those bunk congressmen know it. Their error was that they foolishly thought they could fool all the people all the time. That can't be done.

The high income tax schedule put in the bill by

Senator Connolly of Texas will never be spread for the taxpayers to pay next year.

Why?

Because a new, chastened, and wiser Congress will assemble next December. It makes no difference who is elected president, but it does make all the difference between poverty and prosperity as to who are elected senators and congressmen.

The people propose to see that the next Congress is composed of men who will vote overwhelmingly to pass, without a dilatory tactic by Blaine, or a monkey shine by Huey Long, a manufacturer's sale tax which will produce a painless revenue of some half billion dollars, and also a tax on beer which will likewise provide an equal amount at least, and thus, the billion of dollars or more so raised, will be used as an offset to reduce the commerce-wrecking high income tax schedule against incomes of 1932 and abolish the hideous annoyances of the nuisance taxes also.

The people of the United States have it in their power to cut their taxes. They are going to use that power from now on with a vengeance. They will elect men to Congress who will do the job.

In the meantime, the national budget is balanced.

The integrity of the United States dollar is still maintained.

Before the next fiscal year rolls round, there will be a surplus in the United States treasury and America will be sitting on top of the world again.

Accomplishments of the Buffalo Meeting

WHILE the attendance at the annual meeting of the Superintendents Association in Buffalo last week was not up to the standard of recent years, it was an enthusiastic and studious gathering of men who accomplished more in the way of acquiring knowledge of new machinery, processes and equipment than might have been possible if the attendance had been five times as large as it was. They are an eminently sociable body of men, the superintendents of our pulp and paper mills, as well as their camp followers, the supply and equipment men, who are always present in large numbers at any national convention of the pulp and paper industry. "Peddlers" they are called in playful mood by some officers of the association, as does the energetic general chairman of the Committee of Arrangements who accomplished so much in the way of making the meeting at Buffalo the success it was.

At this year's meeting, an attractive exhibition of new apparatus, machinery and equipment was staged. This promises to be a feature of increasing importance at future meetings, for the keenest interest was taken in the displays, every exhibitor speaking in favorable terms of the attention given to them. With an attendance upwards of 200 persons, made up of superintendents, visitors and guests, one of the exhibition booths where a record was kept, listed the names of 196 persons who were callers, an unusually good showing for an exhibition of this kind.

Sociality at annual conventions of the industries is sometimes encouraged to the neglect of business, but this charge could not be made against the Buffalo meeting of the American Pulp and Paper Mill Superintendents Association, because scientific discussions and business affairs took precedence over entertainment features, except, of course, in the case of the wives, sweethearts and daughters of the visiting members and guests who received many attentions, being entertained lavishly at concerts, luncheons and in sight-seeing and shopping trips. Both local manufacturers and outside supply houses did everything possible to contribute to the pleasure and comfort of the men and women in attendance, some of whom came great distances to Buffalo. Much of the credit for the success of the meeting must go to Fred. J. Rooney, the indefatigable chairman of the Committee of Arrangements, who left nothing undone to make it the profitable and enjoyable meeting it turned out to be, despite the times.

Of outstanding importance among the matters disposed of at Buffalo was the ratification of a new Code of Regulations for the association, which had been adopted by the Board of Trustees following the legal process of making the association a corporate body under the laws of the State of Ohio. Some provisions of this Code of Regulations have raised a question as to the status of members who may have ceased their active connection with the industry as superintendents in the manufacture of pulp and paper, but we are of opinion that they are not likely to apply to persons who were admitted to active or associate membership prior to the adoption of the Articles of Incorporation; in other words, a regulation of this kind applies only to the qualifications of new members and will not be held retroactive unless especially provided for. However, in any case, discretion in the matter appears to be vested in the Membership Committee, and no anxiety need be felt on this score by those likely to be affected until decisive action has been taken by this committee.

It is a pleasure to state that the business of the convention was conducted expeditiously, and with the fullest regard for the rights of all who sought a hearing before the association, for the expression of their views regarding any question of interest, whether it applied to claims for new machinery, equipment or processes, or to the ventilation of opinions concerning policies or plans of those in authority.

In the selection of William H. Brydges to head the

PLANT IMPROVEMENTS WHICH COST NOTHING

• We have encountered several instances where the first year's savings from modernizing an existing bleach plant will run from 50% to 150% of the total outlay required.

• This is an investment for even the 1932 brand of economics.

• And while the installation is paying for itself, there is an improvement in quality of product which alone would justify the investment in normal times.

• If you are bleaching pulp by any of the older methods, we suggest that you permit us to analyze the situation for you. There are no obligations whatsoever.

PULP BLEACHING CORPORATION
200 FIFTH AVENUE, NEW YORK, N.Y.

association during the ensuing year, the association has acted wisely, for he has had several years of experience in association work and may be depended upon to exercise conservative judgment in promoting its interests, while the general conduct of its affairs is left under the Articles of Incorporation with a Board of Trustees which may be depended upon to use wisdom in its deliberations and justice in its decisions.

Exchange Your Ideas

MANY readers of THE PAPER INDUSTRY have no doubt been interested in and obtained helpful suggestions from its department of "Practical Helps for the Mill Man." Reprints of these Practical Helps have been made and thousands of them distributed and sold to men connected with the production departments of paper and pulp mills.

During the early years of THE PAPER INDUSTRY, a drawing of a closed hand was used at the top of an editorial page and under this hand was a legend, "A closed hand cannot receive anything." The idea was that if one keeps his hand closed he does not hand out anything nor can he take in anything. It was with this idea in mind that all of the important associations of the industry were formed; that is, to exchange ideas among its members.

On another page in this issue there is an account of a mill on the Pacific Coast where prizes are offered to the employees for suggestions of this character. In this item several helpful suggestions, for which prizes were awarded, are enumerated. Among them are: to pipe color to Number Four machine beaters, to reduce loss and save color; to install sheet iron on tiering machinery at the bag warehouse, to reduce damage to paper when it is dumped on the platform; to lengthen bearings on the clam shell bucket to reduce wear and allow the bucket to close more tightly reducing sulphur spillage; installation of guard around pulley for Number Thirty beater to keep water off the belt and avoid shut-downs; to install mirrors in the chipper rooms so man on Number Two chipper can see outside conveyor and feed the wood on to inside conveyor more evenly.

These are all ideas that were suggested and proved to be of value to this company. Some of the men in most mills have some ideas which no doubt would be helpful to their employers, and we believe that this plan should be encouraged, even to the giving of prizes.

A letter came to us several years ago from the manager of an important paper mill in the East in which he commended us for the publication of these Practical Helps and stated that one of his superintendents had told him that one of these helps, as published in a former issue of THE PAPER INDUSTRY, had saved their company several hundred dollars.

We are most anxious to publish this type of material and feel that the largest possible use should be made of this information, and suggest that paper mill men send to us from time to time any suggestions that have been worked out in their mills and proved practical. These items should be typed if possible and, where it can be done, a drawing or picture of the device should accompany the article. Credit will be given to the employee making the suggestion together with the name of the mill with which he is connected. These can be sent in by any employee in any of the mills, but should be verified by the superintendent or mill manager.

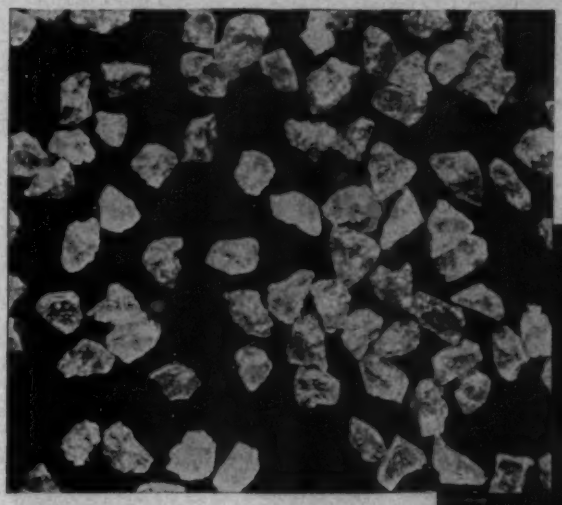
The open hand, ready to give out helpful suggestions to others in our industry, is the key that will make many savings and improvements in these plants. No one can lose by giving out a good suggestion and we hope that we may have the pleasure of receiving and publishing, for the benefit of the whole industry, many worthwhile suggestions.

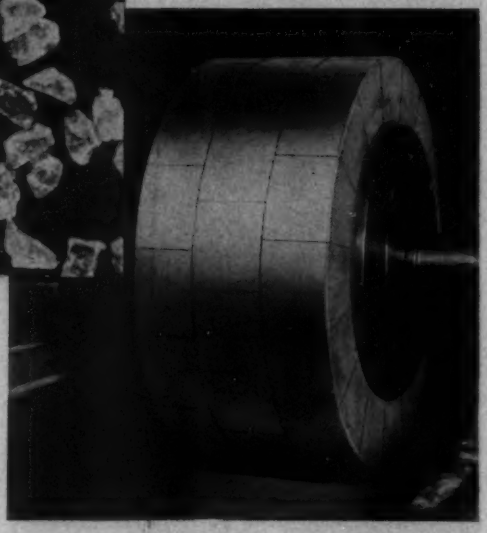
Organization for Co-operation of Effort

IT is reported that efforts are again being made to effect some form of organization among the manufacturers of book paper whose bureau for the distribution of information concerning production, stocks and shipments was dissolved some fifteen years ago, following an investigation by the Federal Trade Commission. It is to be hoped that the present efforts of those engaged in the work of organizing this branch of our industry will meet with success, for it goes without saying that no industry can grow and develop strength without that organization which is a necessary part of our progressive modern life. The need for organization has been recognized by the Government, the Federal Trade Commission itself having of late consistently encouraged the formation of associations in the trades and industries, not the least of the ends in view being that relations with the Government might be simplified and brought under control through a responsible and authorized head. Apart from this, the fact remains that no great enterprise can succeed without correlation or co-operation of effort such as can be assured through organization of separate units into a harmonious body.

Since the dissolution of the old Newsprint Manufacturers' Association and the Book Paper Manufacturers' Bureau of Statistics, much has been learned by association managers concerning legitimacy of operations and no attempt is now made to discuss questions affecting the maintenance of prices, a subject which is taboo. It is sought rather to stabilize the industry and make cutthroat competition impossible by education through the collection and publication of statistics of regional production, consumption and stocks on hand.

STILL ANOTHER POINT
WORTH CONSIDERING





A *specially Created Abrasive Grain* FOR PULP GRINDING

ORDINARY abrasive grain wouldn't do in the manufacture of Aloxite Brand Pulp Grinding Wheels.

So Carborundum Research has produced a specially created aluminous oxide abrasive grain for these wheels.

—A grain that is "blocky" in its structure, having comparatively blunt edges.

—A grain that has a rubbing action—rather than a cut, thus giving a maximum production of an exceptionally fine quality of fiber.

The Aloxite Brand Pulp Grinding Wheel—new in design—new in principle—has other points worth considering.

The complete details will be found in the booklet sent upon request.

This Wheel will be exhibited at the Buffalo Convention

ALOXITE Brand PULP GRINDING WHEELS
REG. U. S. PAT. OFF.

Maximum Production of Fine Quality Pulp

THE CARBORUNDUM COMPANY ▪ NIAGARA FALLS, N. Y.
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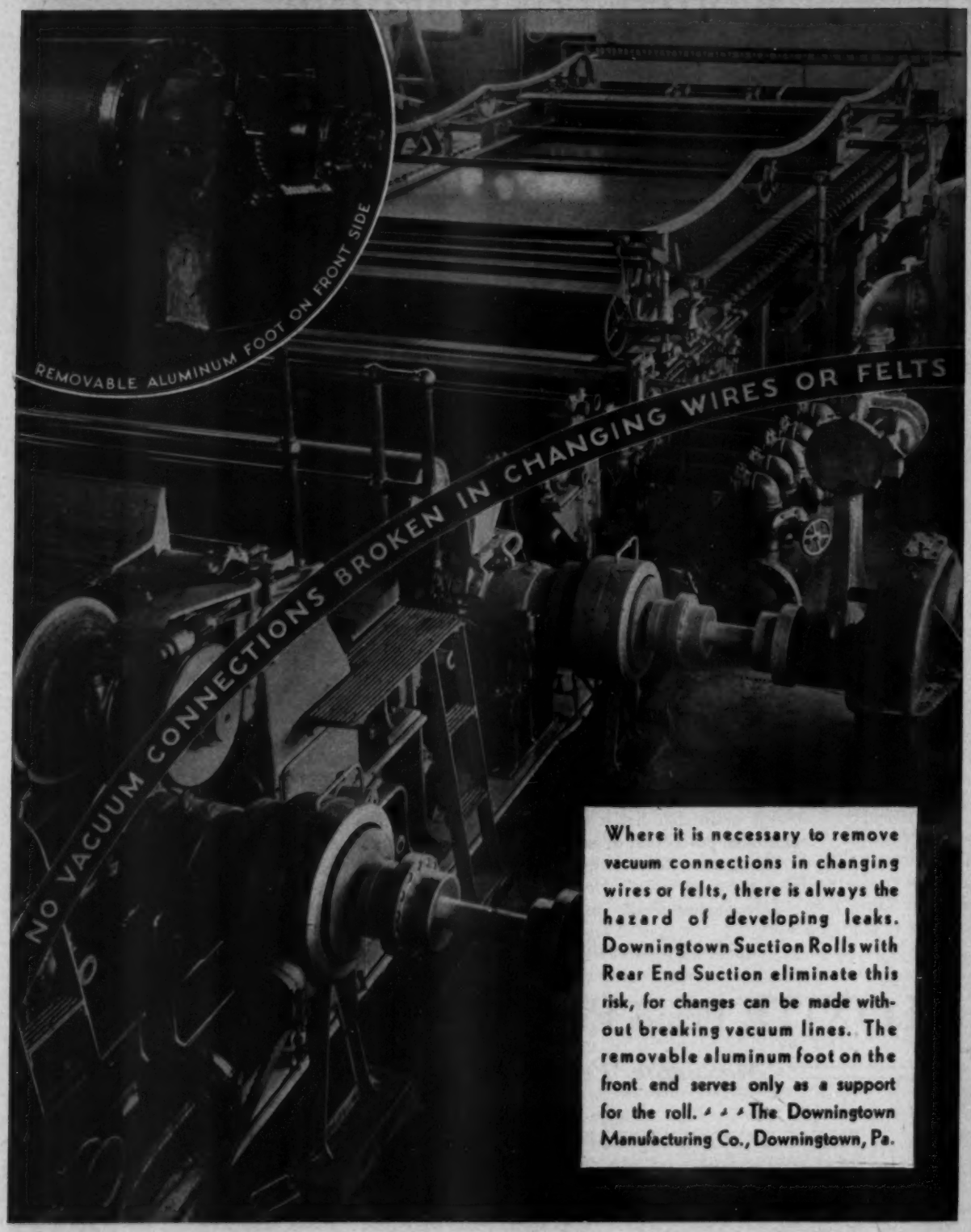
CANADIAN CARBORUNDUM CO., LTD. ▪ NIAGARA FALLS, ONT.—TORONTO, ONT.

(CARBORUNDUM AND ALOXITE ARE REGISTERED TRADE MARKS OF THE CARBORUNDUM COMPANY)

DOWNINGTOWN



Where it is necessary to remove vacuum connections in changing wires or felts, there is always the hazard of developing leaks. Downingtown Suction Rolls with Rear End Suction eliminate this risk, for changes can be made without breaking vacuum lines. The removable aluminum foot on the front end serves only as a support for the roll. ▲ ▲ ▲ The Downingtown Manufacturing Co., Downingtown, Pa.

DU PONT

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A SUPERIOR ACID ORANGE

with 3 Outstanding Properties

DU PONT ORANGE RO is very brilliant in shade. It foams less than other acid orange dyestuffs. Has more affinity for the fibre. Gives clearer backwaters. Is very economical to use.

Alone or in combination with Du Pont Brilliant Crocein FL, Du Pont Orange RO produces very brilliant orange to scarlet shades on all grades of stock.

Remember—our Technical Department is always at your service to help solve your paper dye problems.

DU PONT DYES FOR PAPER

E. I. DU PONT DE NEMOURS & CO., INC., *Dyestuffs Division, Wilmington, Delaware*

SALES OFFICES: Boston, Mass., Charlotte, N. C., Chicago, Ill., New York, N. Y., Philadelphia, Pa., Providence, R. I., and San Francisco, Calif. Represented in Canada by Canadian Industries, Ltd., Dyestuffs Division, Canada Cement Building, Montreal, Canada.

Norton Pulpstone
—gradually, steadily, through the years, has risen to a high place of importance in the great groundwood industry.
NORTON COMPANY
NORTON
WORCESTER MASS.

THIS STOCK PUMP CAN'T AIR-BIND

AIR BINDING is a stubborn source of pumping trouble in paper mills. It lowers pressures, reduces the amount of stock handled . . . even stops the discharge of the pump entirely.

But air binding need no longer be a problem to you. Goulds Research has solved it.

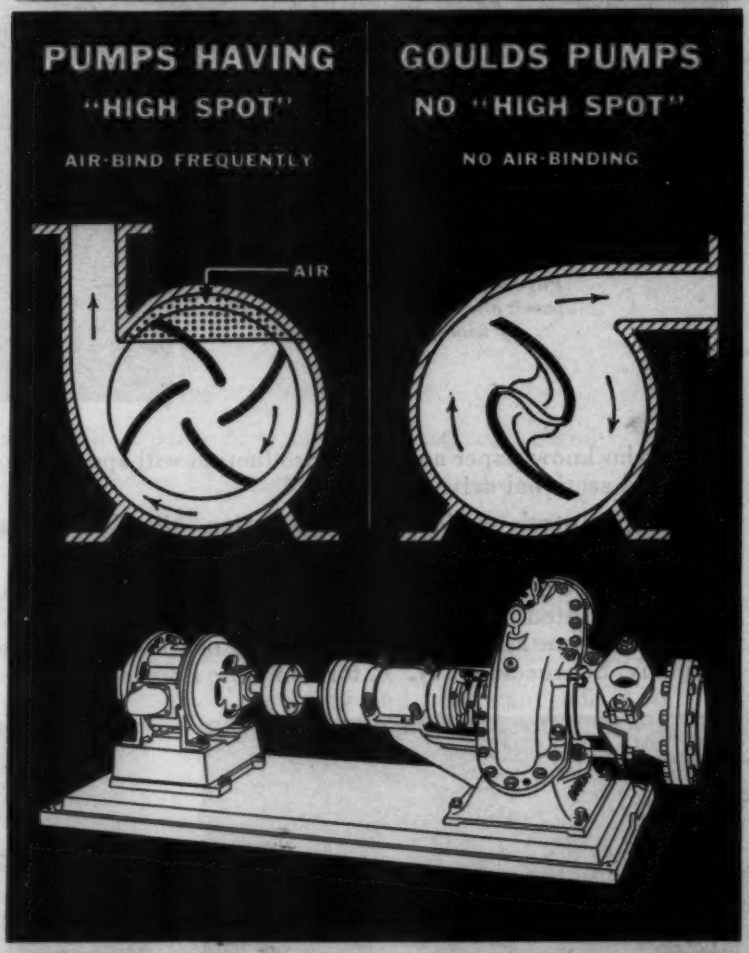
Goulds discovered that air binding is caused this way: the entrained air in paper stock forms air pockets in the highest point of the pump casing . . . "the high-spot". Goulds learned that "high-spots" occur in pumps with discharge nozzles extending out horizontally from the bottom of the casing, or up from the side.

So Goulds developed a centrifugal stock pump with the discharge nozzle at the highest point in the casing! Result: no "high-spot". . . no possible air-pocket . . . no air binding.

This pump is used by some of the country's most prominent mills. It handles stringy, dense, difficult stock . . . without clogging . . . with efficiencies comparable to those of reciprocating pumps . . . and with uniformly high power savings.

Development of this pump is a typical result of Goulds research. This research is a constant part of Goulds practice. It costs over $1500 a week. To buyers who seek reliability, durability, and economy of operation, it is a constant promise of better and better performance.

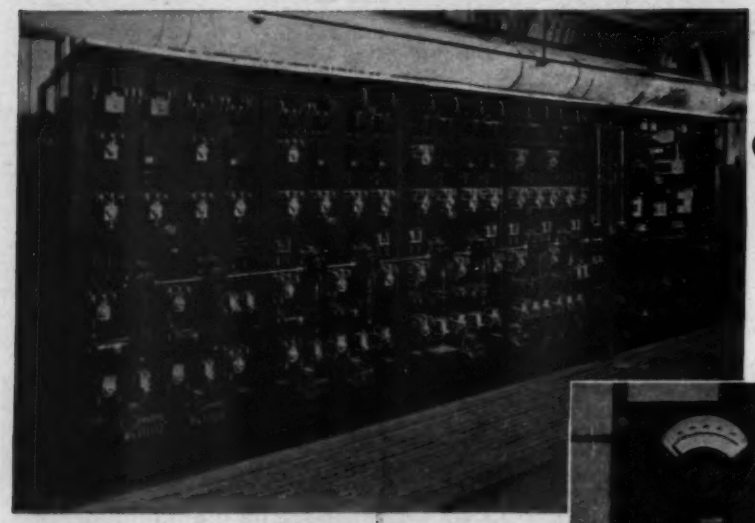
Goulds Pumps Inc., Seneca Falls, New York. Branches and agents in principal cities.



$1500 A WEEK FOR BETTER AND BETTER PERFORMANCE

GOULDS PUMPS

A New Sectional Drive for Longview



Compensated Selsyn control panel in the Longview Fiber Company's plant, Longview, Wash.

and again G-E compensated Selsyn control

Paper-machine-room master control panel; also two sectional control stations with splash-proof meters

YOU who know paper and paper production will appreciate what the G-E compensated Selsyn-controlled sectional drive offers you:

Finger-tip control; sectional control stations that indicate at all times the performance of the section; master control for direct, quick speed adjustment.

Steam-balance generator set that provides the greatest economy under all operating conditions. G-E compensated Selsyn control, providing superior performance at low speeds, offers you these and other advantages; why not ask your nearest G-E office, or write to the General Electric Company, Schenectady, N. Y. for complete information?

90-inch Moore and White paper machine with Minton Vacuum drier and G-E compensated Selsyn sectional drive

Steam-balance, turbine-synchronous-motor generator set supplying power to the sectional drive and low-pressure steam to the driers

237-58

GENERAL ELECTRIC

No Compromise

WARREN

When sound engineering principles are involved, there can be no compromise. To cheapen at the expense of reliability . . . to recommend along the borderline at the sacrifice of security . . . to do these things for the sake of price advantage is to barter safety for price.

The name of Warren on your pumping equipment is your guarantee that no compromise has been made in these essentials to satisfactory service: sound design, proper selection of materials and high standards of workmanship.

For service and security, consult Warren. A recommendation by Warren is never a compromise.

WARREN STEAM PUMP CO. *Incorporated*

WARREN, MASSACHUSETTS

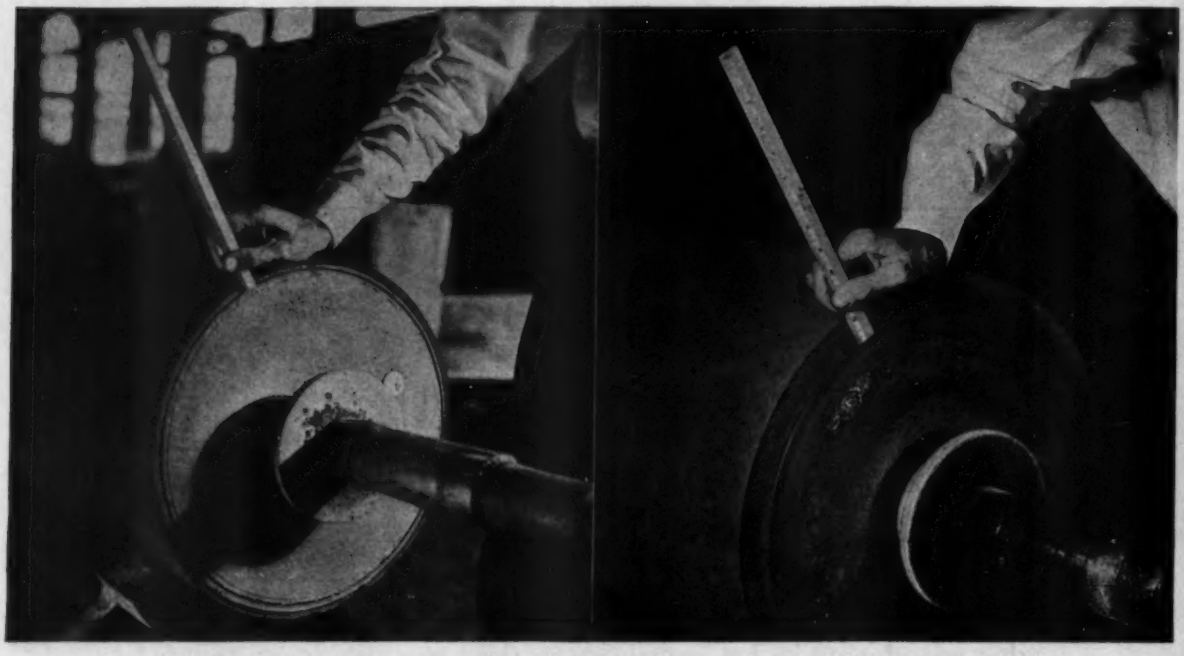
Agencies in all principal cities

Hard Rubber is Dead Rubber

WHY *buy it?*

HARD RUBBER BASE ROLL—*which has been used until it no longer has sufficient cushion. The hard rubber is dead rubber; valueless as cushion. Since this dead base is about ¼" thick, it represents a 25% waste on a 1" cover.*

A GOODRICH VULCALOCK ROLL. *The cover is soft rubber right down to the metal core. No hard rubber; no waste. Specify Vulcalock rolls, and you get one hundred cents' worth of live cushion for every dollar spent.*



Study the rulers on these rolls.

The roll at the right is a Goodrich Vulcalock; no hard rubber here. The cover is soft rubber . . . 100% cushion . . . clear to the core.

The Vulcalock roll is the *only* roll that does not have a hard rubber base; the *only* roll that gives you one hundred cents on the dollar in soft rubber . . . live cushioning.

The roll at the left, now pretty well worn out, is one of the old-fashioned type. It has, you will note, a hard rubber base that measures a good ¼" of its original 1" cover.

Put it in terms of dollars and cents. If you buy a hard rubber base roll, so far as cushioning is concerned, *you get only seventy-five cents on the dollar.* One quarter of the roll, twenty-five cents on every dollar, is hard rubber . . . dead rubber . . . waste cushion.

THE HARD RUBBER base roll is a poor investment when new. And it wastes money every time it's re-covered. The metal core has to be re-rough-threaded. Removing metal from the core, you've got to add rubber to the cover to build the roll up to the correct outside diameter. At each re-covering you pay for a thicker covering of rubber.

Makers of hard rubber base rolls in many cases have to change the formula for the soft rubber cover so that cover and hard rubber base can be vulcanized at the same time. The soft rubber cover on a Vulcalock roll can be compounded to meet *your* specific requirements.

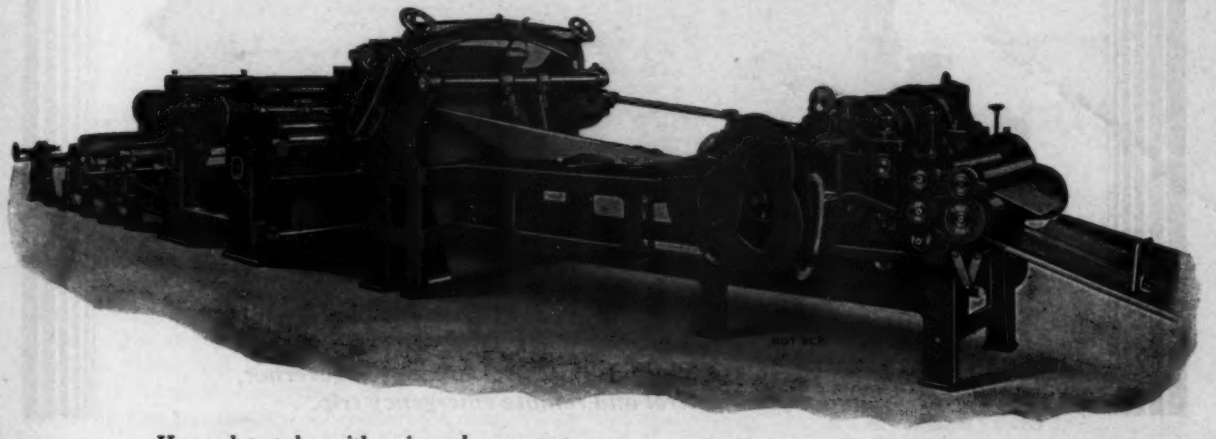
. . .

Literature on the Goodrich Vulcalock roll will be sent on request; quotations on specific jobs are submitted without obligation. Address The B. F. Goodrich Rubber Company, (Est. 1870) Akron, Ohio.

B. F. Goodrich

VULCALOCK PAPER MILL ROLLS

Be a "doubting Thomas"



Heavy-duty tuber with universal cross pasters

SMITH & WINCHESTER paper-bag machines, before shipment, are completely assembled and tested at the factory. The customer is invited to see the machine operate on every grade of paper it will use—see it meet every requirement 100%.

Accepted . . . shipped to its destination . . . installed . . . it goes into production quickly without fuss or trouble.

Bulletin 1032 is just off the press. It contains the latest available facts on modern paper-bag machinery: tubers, bottomers, conveyors, special machines, complete units. Fill in the attached coupon. It will bring you a copy free.

The SMITH & WINCHESTER MFG. CO.
South Windham, Connecticut

Send, without obligation, your bulletin covering the latest facts on paper-bag machinery.

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PIONEERS IN PAPER-BAG MACHINERY SINCE 1899

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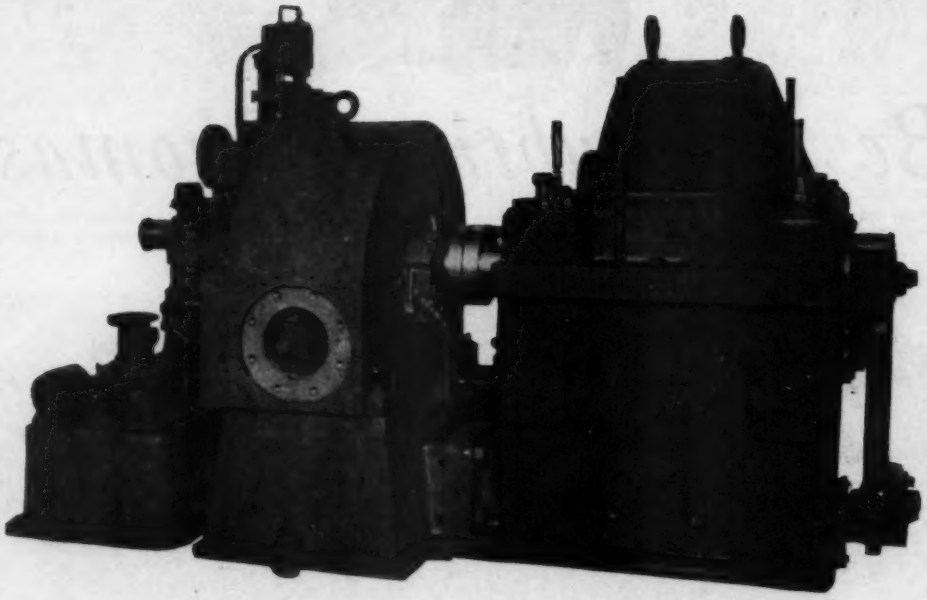
The SMITH & WINCHESTER

Manufacturing 1828 *Company*

393

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

TERRY



Terry Turbo-Gear Unit equipped with variable speed governor, remote speed control and remote emergency trip.

TERRY VARIABLE SPEED TURBINES—

— Are the result of many years of experience in supplying variable speed drives for paper machines — a service that is extremely exacting due to the accurate governing that is required at all speeds.

These units employ the Terry Hydraulic Fluid Type Governor. A typical application is shown above. This is a 400 H.P. turbo-gear set designed to operate over a 6 to 1 speed range. Any turbine speed from 700 R.P.M. to 4225 R.P.M. can be obtained while the unit is in operation.

Terry engineers will be glad to give you full details of Terry variable speed turbines. Horsepowers and speeds required, as well as steam conditions and type of driven apparatus should be stated in all inquiries.

The TERRY STEAM TURBINE COMPANY
TERRY SQUARE, HARTFORD, CONN.
Steam Turbines - Gears - Shaft Couplings

T-1083

THE PAPER INDUSTRY

A MONTHLY EDUCATIONAL JOURNAL

Paper Manufacturing Role in Economic Development of the South[1]

A review of the South's natural economic advantages which promise for the paper industry a dominant position in national production.

By R. H. STEVENS

Chief Chemist, Bogalusa Paper Co., Inc., Bogalusa, La.

THE industrialization of the South is a comparatively recent movement. This is partly because of the feudal organization of society during the plantation era and the disastrous effects of the war between the States and of the "Reconstruction" which followed it. Another important cause of delayed development was the health conditions that obtained in the mosquito-infested coastal plain and even in the Piedmont areas. The awakening of the South dates from the war with Spain when men from all parts of the country passed through this section on their way to Cuba and began to realize the wonderful opportunities which it offered. The discovery of the cause of yellow fever and the development of modern sanitary science followed soon after and paved the way for industrial expansion.

Lumber and naval stores were naturally the first of the South's resources to be exploited because of the abundance of its forests and the suitability of these operations to the type of labor available. Also, these lines of manufacture required less capital of which there was then little available in the South. The pine forests originally occupied 130 millions of acres with a merchantable stand of 650 billion board feet. Even with the enormous rate of cutting for the past thirty years, there still remain 36,600,000 acres of merchantable pine timber amounting to 116 billion board feet besides 81 million acres of smaller wood. In 1929, the South produced 11,580,317,000 board feet of yellow pine lumber which was 39 per cent of the total softwood lumber produced in the entire United States. In the same year this region produced 61 per cent of the 7,058,000,000 board feet of hardwood lumber. More than 107 million acres of hardwood timber yet remains in the South, about 20 per cent of which is virgin forest.

The fortunate occurrence of coal, limestone and iron ore in close proximity to one another in northern Alabama led to the establishment of iron and steel manufactures at Birmingham and Gadsden, where one-half the nation's cast-iron pipe and one-eighth of the pig iron are now produced. The vast oil pools of Louisiana, Texas, Arkansas and Oklahoma, from which comes 62 per cent of the nation's total petroleum led to the building of the world's largest single oil refinery at Port Arthur, Tex., with another almost as large at Baton Rouge, La., besides others of lesser capacity in this section. Similarly, the production of 60 per cent of the nation's natural gas resulted in the manufacture of 96 per cent of the nation's carbon black in Texas and Louisiana.

Phosphate deposits and recent advances in nitrogen fixation have enabled the South to become the leading section in fertilizer manufacture. The 1930 production was 5.8 million tons, or 72 per cent of the nation's total. Practically the same amount was consumed in the South. This is the only section containing bauxite from which aluminum, abrasives and chemicals are made. The world's largest aluminum plant is at Badin, North Carolina, and over half the nation's aluminum sulphate is manufactured in the South from southern bauxite. One-third of the clay mined in the United States comes from the South, Alabama and Georgia being the principal producers. In 1928, the value of clay products manufactured in the South amounted to 82.5 million dollars. Refractory clays are so abundant and so readily accessible as to assure to this region the leadership in manufactures of this type. China clay, suitable for use in paper manufacture, is mined in South

[1] A paper presented before Section C of the American Association for the Advancement of Science in New Orleans, December 29, 1931.

Carolina. Texas is the only part of the United States where sulfur is mined, though extensive deposits occur also in Louisiana. Last year the production exceeded 2.5 million tons of which less than two million was shipped. This had a total valuation of 35.9 million dollars. Salt is an important mineral of Louisiana, the 1929 production being 526,000 tons valued at $2,277,000. The South also produces one-fourth of the nation's lime (826,000 tons in 1930). These minerals, salt, sulfur and lime are important in paper manufacture as also are suitable wood species and water of proper clarity and softness.

Progress in the science of power transmission during the present century made possible rapid expansion of hydroelectric development, and today the South has nearly one-fourth of the nation's 13.8 million horsepower. This, together with the availability of four-fifths of the world's cotton, grown within its borders, and also the abundant labor supply, has led to the establishment of cotton textile mills in the South. Last year there were 19 million cotton spindles in this region, or 56 per cent of the nation's total. The world's largest damask mill is in Rosemary, North Carolina, while Greenville, South Carolina, has the world's largest cotton mill under one roof. The southern cotton textile mills are increasing in number and output, while those of New England are diminishing.

The South's oil mills crushed 4,840,000 tons of cottonseed in 1929, producing 1.5 billion pounds of oil and more than a million bales of linters. This was 95 per cent of the country's total and the value exceeded a quarter of a billion dollars.

The South also manufactures 90 per cent of the nation's rayon production, and the world's largest rayon plant is at Roanoke, Virginia. Cellophane and similar sheeted products are being made in Virginia and a superior cellulose acetate film in New Orleans. One of the finest textile schools in the country is in Atlanta, Georgia, and the only school of rayon engineering in the United States is at Clemson College, S. C. Louisiana has the world's finest school for sugar makers at Baton Rouge and the Houna, La., Agricultural Experiment Station has developed cane varieties superior to any hitherto known. Last year, this state produced 207,850 tons of sugar and 1,288,000 gallons of syrup on 195,000 acres of cane. This is a larger production and smaller acreage than any year of the past decade. This state leads also in rice production, raising nearly half the nation's total. With Arkansas and Texas, the total for 1930 was 34 million bushels, 82 per cent of the entire United States' production. Lake Charles, La., has the largest complete rice mill in the world. Also, the only plant in the world converting rice hulls into chemically pure cellulose.

To take a bird's eye view of the South's economic position, this region stretching from the Potomac to the Rio Grande, including Oklahoma and Missouri, but not West Virginia, comprises 30.9 per cent of the total area of the United States, excluding Alaska and island possessions. In 1900, it contained one-third the population and had 18 per cent of the entire wealth. In 1929, with only 30.8 per cent of the population, it had 19.6 per cent of the nation's wealth. From an estimated 16 billions of dollars in 1900, its wealth has risen to 71 billions, four and one-half times the former figure. During the same period the wealth of the rest of the country rose from 72.5 billions to 290.7 billions, just four-fold. In 1899, the value of the South's farm produce exceeded that of her manufactured goods; viz., $1,564,069,000 and $1,286,100,525, respectively. By 1929, however, the picture had changed completely. The manufactures exceeded the farm produce three to one ($10,104,038,000 to $3,268,000,000). Thus with a smaller increase in population, due to less immigration, the South has more than kept pace economically and industrially with the nation as a whole.

Paper manufacturing in the South was insignificant in volume prior to the World War, being confined chiefly to Virginia and the Carolinas. Richmond, Va., has long been the world's greatest manufacturing center for blotting papers made from rags and in the hill section around Bristol, Lynchburg and Asheville, N. C., were several book paper mills of small tonnage. In 1909, the sulphate process was introduced at Roanoke Rapids, N. C., followed by another installation at Moss Point, Miss., in 1913 and the conversion of another mill

A photograph of one of Edgar Brothers Company clay mines in Georgia.

A stand of thirty-one year old loblolly pine. That to the right of post in foreground has been thinned by removal of 12.5 cords per acre.

at Orange, Texas, to the new process in 1911. These mills used the southern yellow pine which had previously been thought useless for paper manufacture. Their success led to a rapid expansion of the industry, and in 1930, the South produced 526,097 tons of sulphate pulp, or 55 per cent of the total for the country. This expansion has been aided by the rapid rise of the shipping container industry brought about by the parcel post, established in 1912, and the tendency toward sales of packaged goods at standardized retail prices in all sections of the country. The cessation of imports of Scandinavian pulp during the World War was an added impetus which hastened the building of paper mills in the southern pine belt.

The South offers several marked advantages to the paper manufacturer. Raw materials are plentiful and obtainable at low cost. As already noted above, there still remain 36.6 million acres of merchantable pine timber. In addition there are 81 million acres of smaller stand. The rate of reproduction exceeds that of any other papermaking region. Under intelligent forest management, the annual growth of the Southern pine forests could be made to sustain fifty times the South's present paper production. That would amount to more than double the entire present national consumption, or more paper than is used in the entire world today. In addition there are other species, such as the gums (tupelo, red and black), poplar, cypress, maple, magnolia, white bay, etc., the possibilities of which are only just now being investigated.

Attention has already been called to the abundance of lime, salt, sulphur and china clay. There is also an abundance of cheap fuels, such as sawmill waste, easily mined steam coal, oil and that premier of all fuels, cheap natural gas. Artesian wells of moderate depth along the coastal plain supply clear water of minimum hardness, while that from rivers, creeks and bayous requires only filtration to make it suitable for use in paper manufacture. There is also an abundant supply of intelligent white labor of native stock supplemented by the unskilled colored workman. Although freight rates to the principal consuming centers are higher than for the older papermaking regions, this handicap is more than offset by the advantages of cheaper raw materials, fuel and labor. The following Table I shows the South's advantage in this respect:

TABLE I

*Regional Variations in Cost of Cheapest Rough Wood Required for a Ton of Chemical Pulp and Costs of Transporting the Paper to Chicago and New York.**

REGION	Reported Cost of Two Cords of Wood	*Chicago* Transportation	*Chicago* Summation	*New York* Transportation	*New York* Summation
New England (Domestic Spruce)	$25.00	$ 9.00	$34.00	$ 5.50	$30.50
Middle Atlantic (Domestic Fir)	28.00	7.75	35.75	5.25	33.25
Lake (Hemlock)	20.00	3.80	23.80	11.50	31.50
Appalachian (Pine and Hardwoods).	26.00	6.50	32.50	8.50	34.50
South Atlantic (Pine)	17.00	9.00	26.00	7.00	24.00
Louisiana and Texas (Pine)	11.00	9.40	20.40	13.25	24.25
Pacific Coast (Hemlock Slabs) (Rail)	13.00	20.00	33.00	26.00	39.00
(Hemlock Slabs) (Water)	13.00	....	....	8.00	21.00

*From *"Pulpwood,"* a publication of the Pulpwood Department of the American Paper and Pulp Association, Vol. 2, No. 12, Dec. 1929, p. 2. This table was based on statistics for 1928.

Much of the forest lands just referred to constitute at the present time a serious economic problem. The "timber mining" sawmill operators have skimmed the cream leaving them barren or only scantily stocked. Despite their wonderful potential productiveness, in their present condition they are more of a liability than an asset. The owners can ill afford to pay the taxes and the counties cannot afford to exempt them. Except for forest, these lands are of low productivity. Some of the southern states have wisely enacted laws to encourage reforestation by deferring taxes on the timber crop until the harvest, just as with an annual crop like cotton or sugar. The fact that less time is required to make a crop of pulpwood than one of saw timber, makes the idea of an expanding paper manufacturing industry all the more attractive. It should be borne in mind, however, that the southern woods do not lend themselves readily to the manufacture of all kinds of paper, at least not by the methods at present commonly employed.

The remainder of Mr. Stevens' highly interesting article will be published in the next issue.

CURRENT THOUGHT

BY WILLIAM SIBLEY

"Creative Management"

FOLLOWING on the heels of my article "The Newspapermen's Special" in which I voiced the belief that many of the difficulties involved in personnel relations could be eliminated through the employment of the principle of "the newspapermen's special," there comes the May *Executives Service Bulletin* from the Policyholders Service Bureau of the Metropolitan Life Insurance Company, with a lead article by W. L. Carter, president of the Nashua Gummed & Coated Paper Company, Nashua, N. H.

Mr. Carter's article, under the title of "Creative Management," gives voice to such sane thinking, and so clearly expresses the value of examining into the human appeal in all phases of business, that with his anticipated permission I find real pleasure in presenting excerpts of his article in these pages.

Pronouncedly sensible are Mr. Carter's prefatory remarks to the effect that: ". . . To us the business situation resembles an ailing person who has consulted many specialists, none of whom has been able to diagnose one distinct cause of the ill health, but each in turn suggested certain treatments which, from the specialist's point of view, would contribute to the recovery of the sick man. Finally, the family doctor is called in and decides there is no special treatment required, but if the patient would stop worrying, live normally, exercise, eat well and stay out in the open, he would build himself up and his ailments disappear.

"When we applied this theory to our business, it indicated that we should accept for what it was worth, the advice of outside specialists in respect to sales, accounting and production. But, like the sick man, the real problem was to build up the general health of the company. We must cease worrying about the past, and *get out of the habit of regarding the boom times of 1929 as normal.* We must accept the existing conditions as normal and change our methods to make our business profitable under *these* conditions.

"With this decision as a basis, the usual viewpoint of executive management was reversed; instead of focusing our attention on profits, a complete and thorough study of losses was undertaken. The analysis was absorbingly interesting—it took on the thrill of a trip of exploration and adventure.

"The *ordinary* losses experienced by every business—such as claims, bad debts, waste, etc.—quickly were studied in order to effect better means of control. This was a routine matter and easily disposed of. But, as a result of this study, suggestions were made as to possible savings. Any possible saving that can be realized is merely the termination of an existing loss. The difference between this field and the field of routine losses is as follows: In the latter the losses are apparent; in the former, until the possibilities of saving are discovered, the losses are concealed.

"There is no greater adventure in life than a treasure hunt. The enthusiasm with which various members of the organization engaged in this treasure hunt to find these unexpected savings, was almost unbelievable.

"Again, savings such as these rarely can be effected without a change in method, in many cases calling for creative genius and ingenuity of high order. The creation of a value is innately satisfying to the individual. It arouses that spirit of optimism and enthusiasm so necessary to the successful conduct of a business. The very uncertainty as to where these savings existed, the discovery of wholly unexpected possibilities, the fact that the field is limitless, all contributed to the joy of the undertaking.

Results of the Program

"Specifically, some of the results of the program were the following: Labor payroll total was reduced very substantially but individual pay actually was increased; this was accomplished through various wage inventive methods. A definite program designed to make routine operations interesting produced extraordinary results. . . . Savings as high as 50 per cent were effected in such prosaic duties as filing, stenography, cost accounting and bookkeeping.

"The search for a saving to eradicate a loss became a company objective. Every employee from the president to the office-boy joined in the search. Habits, methods and routine that were deadly and uninteresting were swept aside in the crusade. Each and every employee became an explorer, looking for a created value in his individual tasks. The amazing fact is the number of them that discovered this value.

"Sales, in common with those of other manufacturers in our industry, fell off. Prices, unable to resist the law of supply and demand, continued to drop. But the created value discovered by the explorers of the organization continued to out-weigh the shrinkages. Profits were maintained, but a value far exceeding the dollars and cents return was added to the company's resources. It does not show on the balance sheet but it is worth all the assets the bankers study so carefully; it rates ahead of quick assets, because its effect is instantaneous. It is never exhausted, because the more it is used, the greater it grows; it is the creative instinct inherent in every individual. If one recognizes the value of this force in his methods of management, he will be amazed at the results.

"Although illustrations of how we apply the principle of creative management might be drawn from the manufacturing, credit, sales or any other department of our business, let me describe the reorganization of the stenographic department. I purposely select this department because the routine, prosaic nature of the work will show best, perhaps, the possibility of instilling interest appeal.

"The investigation began with a time-study survey

differing from the usual time-study in that particular attention was given to the character of the task performed; that is, whether it was monotonous, or if it had details of variety which provided interest, and what methods the employee adopted either consciously or unconsciously to provide variety. Stop watch readings were taken to determine standards. It must be spread over several weeks, to be sure the records are a true picture of normal operations and not an unconscious response to engineering observations.

Stabilizing Output

"Among the interesting facts discovered was that a very uneven output existed, due to an over-extension of energies at certain times, followed by reactions distinctly below normal. All our dictating is done to machines. It was evident that the quality of cylinders not only had a direct effect on the typist's output of any particular cylinder, but also qualified what might be termed her potential performance. A poorly dictated cylinder produced a quite evident fatigue, which carried over to the next cylinder, thereby affecting the typist's production in spite of the dictation quality of the succeeding roll. Some girls made no physical effort to meet this situation, while others unconsciously selected these periods to leave their machines and recuperate.

"Several remedies were applied. The dictation itself was studied. The dictators, some of whom were directors of the company, were rated on a quality basis by the stenographers themselves. The publication of this rating provided a stimulus for the dictators to improve their quality.

"There was quite a difference in the technical qualifications of the typists themselves. It was found that some of the fastest typists under the old system completely fell down on a measured production basis, due to nervousness and emotional excitement. Each case of this character was studied individually.

". . . Throughout the development of the reorganization, the girls were kept fully informed as to the purpose of each and every study. Their interest in it was as keen as that of the management itself. This was very important, as it provided the co-operation throughout, which was essential to the success of the plan.

"Another change was made which further created interest on the part of the majority of the operators. Having formerly typed only the cylinders from one dictator, operators were unfamiliar with the language employed in other departments of the business, with the exception of two or three who could type with equal facility dictation from any department of the company. The entire group, therefore, was divided into three classes—those able to take dictation from any department were placed in Class A; Class B was established for any who could take cylinders from any two departments; Class C for those qualified for only one department. Different base rates were established, "A" being highest and "C" lowest.

"These rates had nothing to do with output, but were established solely on a qualification basis; that is, ability to take dictation from one or more departments. It was then provided that any girl below Class A could promote herself automatically any time to the next higher classification, by passing a suitable examination. The greater flexibility of the department, in having operators capable of taking dictation from any department, more than offsets the cost of automatic advance in base rates.

"The net result is best shown by the final mathematical results:

Output per operator before standardization—440 six-inch lines per day.

Output per operator after reorganization—1,440 six-inch lines per day.

Fatigue before standardization—an important factor resulting in very uneven output.

Fatigue after standardization—practically eliminated as a production factor.

Hours of work before—very uneven, overtime a usual performance.

Hours of work after—almost mathematically standard; an overall time of 8 hours per day; actual operating time 7½ hours per day, with two 15-minute rest periods in the morning and afternoon.

Quality—vastly improved on the new basis.

Typists income increased 25 per cent.

Saving to the company—25 per cent.

"While the illustration I have given applies to an office function, the same theory has been put into practice in both the production and sales fields. Creative Management is a marvelous potential force, making a direct human appeal to every employee, and in it we have the means of making our enterprises more interesting and more profitable to our employees as well as to our stockholders."

Creative management, in Mr. Carter's company has developed to a high degree of perfection the element of personnel co-operation. And such co-operation is the inevitable concomitant to understanding. What the military authorities in France did to a few writers and repetorial men was merely to lay all the facts on the table so that they could see and appreciate the truth. The result was the forestalling of reams of untruths and misconceptions.

What Mr. Carter and the other executives of the Nashua Gummed and Coated Paper Company did, was merely to delve into its own organization and lay all the facts on the table before even the most minor of employees. The result was quickened interest, forestalled misunderstandings, encouraged economy—in short: co-operation.

Isn't the one thing most needed today in all industry just that—*co-operation?* If everyone in business, for himself or someone else, would fully co-operate with every one else connected with his or her job, how long would this depression continue? About thirty seconds!

May I repeat again what I said in April, 1926? "Capital, labor and co-operation constitute a perfect trinity of working forces—a triumvirate omnipotent. They are three kings, sitting on the throne of successful industry, ruling their subjects by mandates of financial reciprocity. They are a democratic combination of directorship, each sovereign sharing equally in power and glory. Capital is the head; labor the body; co-operation the heart—mental, physical and moral—a co-ordination of brain, brawn and conscience. They are symbolized by the three graces—faith, hope and charity. They represent the conjugation of the verb 'to be'—I am, thou art, he is. By the addition of their force, three make one.

"Your organization, be it corporation or family, possesses these elements. It is ruled by these three kings. Make sure, however, that each king has equal power. Keep well in mind that all must work in harmony. Each must support the other, or the structure will crumble to chaotic ruin. United you stand successful; divided, the ignominious defeat of bankruptcy awaits you."

The Paper Industry Safety Contest

Cumulative Scores, July 1, 1931, to April 30, 1932, Inc. 11 Mills Still in Race

PERFECT SCORES

Division I—Paper and Pulp Mills

	ENTRANT	MILL	LOCATION
GROUP A			
GROUP B	The Champion Coated Paper Co.	No. 1	Hamilton, Ohio
GROUP C	Pioneer Paper Co.	Los Angeles	California
	Cornell Wood Products Co.	Cornell	Wisconsin
	U. S. Envelope Co.	Morgan Paper Div.	Lititz, Pa.
GROUP D	Continental Paper & Bag Corp.	Ashland	New Hampshire
	*U. S. Gypsum Co.	No. Kansas City	Missouri
	International Paper Co.	Madison	Maine
	Hollingsworth & Whitney Co.	Riley	Maine

Division II—Remanufacturing

Oxford Paper Co.	No. 2	Rumford, Maine
Kimberly-Clark Corp.	Atlas	Appleton, Wis.
Bemis Bros. Bag Co.	E. Pepperell	Massachusetts

(*) March report not included with scores published in May issue.

IMPERFECT SCORES—Division I

	Key	Rank	Points Credit	Points Debit
GROUP A	PA-10	1	972.752	
	PA- 2	2	781.504	
	PA-11	3	725.040	
	PA- 3	4	710.720	
	PA- 7	5	501.568	
	PA- 5	6	431.008	
	PA- 6	7	328.900	
	PA- 1	8	221.520	
GROUP B	PB-18	2	853.552	
	PB- 4	3	853.152	
	PB-33	4	835.104	
	PB-16	5	805.920	
	PB-14	6	774.448	
	PB-27	7	771.216	
	PB- 9	8	748.688	
	PB- 8	9	743.392	
	PB-30	10	734.448	
	PB-20	11	700.816	
	PB-15	12	560.304	
	PB-13	13	561.488	
	PB- 1	14	495.872	
	PB- 2	15	472.448	
	PB-19	16	465.904	
	PA- 8	17	307.664	
	PB-25	18	257.728	
	PA- 4	19	240.480	
	PB-31	20	213.200	
	PB-17	21		36.576
	PB-12	22		40.128
	PB-24	23		171.968
	PC- 8	24		362.288
	PB- 6	25		561.440
	PB- 7	26		713.200

Division II

	RA- 1	4	952.976	
	RC- 2	5	581.104	
	RC-10	6	573.136	
	RD- 1	7	556.848	
	RD- 3	8	404.848	
	RC- 6	9	363.744	
	RB- 1	10	216.272	
	RC- 9	11	199.920	
	RC- 8	12	143.968	
	RC- 3	13	117.600	
	RC-11	14		755.280

	Key	Rank	Points Credit	Points Debit
GROUP C	PC-34	4	992.864	
	PC-25	5	795.520	
	PC- 9	6	790.672	
	PC-10	7	788.624	
	PC-52	8	588.176	
	PC- 3	9	570.688	
	PC-12	10	536.096	
	PC-18	11	510.000	
	PC-35	12	433.584	
	PC-44	13	419.696	
	PC- 1	14	348.080	
	PC-38	15	307.200	
	PC-28	16	274.400	
	PC-37	17	266.864	
	PC-39	18	188.272	
	PC-20	19	181.664	
	PC-33	20	156.016	
	PC-21	21	116.736	
	PC-11	22	58.320	
	PC- 7	23		43.136
	PC-19	24		74.848
	PC-50	25		91.728
	PC-43	26		130.336
	PC-24	27		147.504
	PC- 2	28		207.600
	PC-36	29		265.984
	PC-17	30		276.288
	PC-53	31		288.080
	PC-56	32		337.952
	PC-30	33		381.616
	PC-42	34		389.200
	PC-53	35		409.600
	PC-31	36		420.848
	PC-57	37		639.536
	PC- 6	38		1,298.768
	PC-13	39		1,400.368
	PC- 5	40		1,764.576
	PC-47	41		1,867.248
GROUP D	PC-46	5	399.712	
	PD- 8	6	323.808	
	PD-12	7		321.632
	PD- 2	8		330.176
	PD- 4	9		2,227.520

New Withdrawals since March 31: PC-40, 45, 51; PD-10.
No March or April report: PB-10; PC-27.
No April report: PA-12; PB-3; PC-4, 58; RC-5.

◆ Important Changes for Next Safety Contest

The Paper Industry's Eighth Annual Safety Contest, which began July 1, 1931, will terminate June 30, 1932. On July 1, 1932, the ninth contest will begin, to run for one year.

Some changes have been made in the rules for the next contest. After a careful study of preceding contests, and in consideration of the conditions under which many of the mills are now operating, it has been decided to group the mills differently. Instead of being grouped according to the number of employees, contestants will hereafter be grouped each month according to the number of man-hours worked.

The grouping will be carried out as follows:

Group A—Those mills or plants having an average monthly exposure of 110,001 man-hours or more.

Group B—Mills having an average monthly exposure of 60,001 to 110,000 man-hours.

Group C—Mills having an average monthly exposure of 30,001 to 60,000 man-hours.

Group D—Mills having an average monthly exposure of 6,000 to 30,000 man-hours.

In Division II, the mills will be ranked according to the number of man-hours worked, as the registration is not sufficient to bring these mills under group specifications.

Another important change is the increase of time charges for a fatal accident. Since 1926 the Paper & Pulp Section has been privileged by the National Safety Council to stipulate 1,000 days as the charge for a fatality, and this figure has been used in all Paper and Pulp Section Contests since that time. However, the National Safety Council has brought to the attention of the Paper and Pulp Section the fact that all of the other sections charge 6,000 days for each fatality; that all local council safety contests, state safety contests, trade association safety contests make the same charge, and that the national sub-committee of the American Standards Association advocates the use of 6,000 days for a death.

As a pioneer section in the promotion of safety contests, the Paper and Pulp Section has adopted the same time charge used by the other sections—6,000 days for a fatal accident.

The bogy for frequency and severity remains the same as for the past year's contest—frequency rate 25.00 and severity rate .50.

◆ Fire Prevention Lessons

A number of vastly important suggestions concerning fire prevention have been pointed out by the Associated Factory Mutual Fire Insurance Companies, Boston, in the June issue of *Factory Mutual Record*.

This issue is entirely devoted to a graphic description, well illustrated, of two fires which destroyed enormous supplies of pulpwood.

At the Port Alfred Pulp and Paper Co., Port Alfred, Quebec, a fire occurred on April 29 which resulted in an almost total loss of a 221,000-cord pulpwood pile which had accumulated over a period of three years, and was probably the largest in the history of paper manufacturing. It was a quarter of a mile long, about 500 feet wide and as high as a 10-story building. The fire burned slowly for twelve days, and in spite of the ingenuity of all fire fighting forces, most of the pile was destroyed at a loss of about $2,500,000. The exact cause of the fire was not determined.

A number of lessons are brought out in the article among which is the great importance of storing pulpwood in units of moderate size. The article is one that would unquestionably prove of value to many paper mills.

Another disastrous fire on April 27, practically consumed a 17,800-cord pile of peeled spruce at the Detroit Sulphite Pulp & Paper Co., Detroit, Mich. This fire lasted for five days and resulted in a loss of between $250,000 and $300,000. This fire was evidently caused by sparks from an acetylene torch used on an overhead conveyor trestle. Many lessons in prevention are also drawn from his conflagration.

◆ ACCIDENT REPORT of the paper and pulp industry for the year 1931 has been compiled by the Statistical Bureau of the National Safety Council, Chicago, and published in booklet form. The report summarizes the experience of members of the National Safety Council in the paper and pulp industry, and it also includes other accidental injury data available from co-operating individuals and organizations. New features of the 1931 statistics for the industry are: a more definite classification of mills and a departmental breakdown.

◆ ACCORDING to *The Safe Worker*, each year approximately $175,000,000 is lost in wages due to industrial accidents, not including anything for deaths and permanent disabilities.

Century of Progress Dedicates Hall of Science

Dedicatory ceremonies in building typifying the theme of the 1933 Exposition are held just one year before the official opening.

AS the chimes from the huge twenty-five bell carillon in the tower of the Hall of Science struck the hour of three on the afternoon of June 1, one thousand five hundred people assembled on the plaza of this magnificent building to witness the dedication by the Century of Progress, Chicago, of this, the theme building of the exposition and the first of such ceremonies to be observed.

This impressive event antedated exactly one year of the scheduled opening of the Century of Progress, and the day was observed in Chicago as World's Fair Day. The city was gay with flags, special programs were held by civic groups and the public schools, and at night a fireworks display was staged.

On June 1, 1933, the star Arcturus, whose light has not reached the earth since the World's Columbian Exposition at Chicago nearly forty years ago, will again send its rays earthward. The light from this star will supply the energy which will strike a photo-electric cell through a telescope and throw a switch to officially open the exposition.

Those who assembled in the great open court of the Hall of Science for the dedicatory services were deeply impressed and filled with enthusiasm as the vision of celebrating one hundred years of the earth's progress began to unfold into reality.

The building was designed by Paul Philippe Cret, Philadelphia member of the exposition's architectural commission. It is shaped like the letter U and covers nine acres.

The Service of Science

Rufus C. Dawes, president of the Century of Progress, presided at the ceremonies. He reviewed the complete history of the organization of the movement, its aims and accomplishments, and expressed the confidence and pride of those who have labored to bring about the success of this undertaking in offering to the public for its approval and acceptance such a magnificent building.

Mr. Dawes spoke of the service of science to society and the benefits brought to humanity through scientific and industrial development. The sponsors of the Century of Progress visioned a great Hall of Science, within which in systematic manner the history of science, the development of the principal sciences and their application might be disclosed. Today that vision is realized in the beautiful building which affords a magnificent setting for the dramatization of this great idea.

Public acknowledgment was made by Mr. Dawes to many well known leaders of science whose assistance has been invoked and received; with particular mention of the officers of National Research Council and the members of the Science Advisory Committee appointed by the Council to co-operate with the Century of Progress.

Dr. Henry Crew, formerly in charge of the Department of Physics at Northwestern University and now chief of the Basic Science Division of the Century of Progress, introduced the dedicatory speaker, Dr. Frank B. Jewett, vice-president of the American Telephone and Telegraph Company and chairman of the Science Advisory Committee.

Dedicatory Address

Dr. Jewett opened his address by stating that the Century of Progress was not intended to be a grandiose celebration merely for the amusement of the public. Science more than any other single factor has controlled human affairs during the past century, injecting into human life many factors with which our forefathers did not have to deal, but which we and our children cannot escape. We must set about finding out what these factors are. During the past fifty, and particularly the past twenty-five years, knowledge of both fundamental and applied science has increased at an astounding rate, and there is a lack of understanding on the part of the individual layity as to just what the fundamental factors are regarding science in its relation to our human problems. Intelligent education is the thing to be most desired.

We have lagged in the development of our understanding of the social factors which these new inventions have brought into human living. In the past, much that is harmful from a social and political point of view has arisen out of science, and now and again the opinion is voiced that science should take a holiday. Admission of the defects of the past and resultant conditions does not imply they must continue nor that the only way out is to abandon that upon which we have based our national life. These factors and their application to our social structure must be understood. The retardation of scientific research is not entirely possible. We cannot stop the thinking of the scientist, nor can we curb completely man's curiosity about the unknown.

In closing, Dr. Jewett said that the exhibits to be housed in this great Hall of Science will convey to the public the desired educational story, presented in such a manner that it will be strikingly interesting and informative. Every thoughtful and intelligent person who spends time within its walls will return home with a better understanding of the problems that confront the world, and some knowledge as to how to go about solving these problems. But, he added the convincing declaration that the solution of scientific problems can never offset the elements of human greed and misuse of public trust that have been manifested throughout the world.

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◆ Building on a Budget

A Century of Progress does not ask any subsidies from governmental bodies, therefore, the financial embarrassments which have come to the Government have not and will not deter the exposition, free as it is from any financial dependence upon these agencies. The exposition operates under a rigid budgetary control, the basis of which is not things desired, but money available.

Superintendents Hold Thirteenth Annual Meeting

Studious gathering of men discuss new ideas and problems in Buffalo, June 2, 3 and 4. New Code of Regulations adopted. Attractive exhibits and delightful entertainment.

THE opening sitting of the thirteenth annual meeting of the American Pulp and Paper Mill Superintendents' Association at Hotel Statler, Buffalo, on Thursday, June 2, lasted two hours, from 10 a. m. to 12 noon, the business including an address of welcome by a representative of the mayor of Buffalo, a response by Past President Fred C. Boyce, the reading of the president's address by Roy H. Kelly, an invocation for divine guidance by a local clergyman followed by a memorial of deceased members, committee appointments and the reading of two papers.

There was a goodly number of members and visitors present when the convention was called to order by Fred J. Rooney, chairman of the general committee of arrangements, who took occasion, in a passing reference to the business depression, to express his regret that so many members had found it impossible to attend the convention. Pessimism was the matter with the country, he said, and pessimism was fatal to progress. The slogan of the association this year was "Progress" and optimism must be encouraged, though he admitted that it was difficult to be optimistic in certain circumstances, as he was personally well aware.

President's Address

It is a time-honored custom for the president of a trade organization to deliver an address reviewing the accomplishments of his year of office and the work in hand. Following the welcoming speeches and responses, President Roy H. Kelly made an able address in which he stated the purpose of the meeting as "the mutual exchange of ideas, a review of the wreckage of the past year and the planning of future progress." He urged greater co-operation of effort, saying: "We cannot afford to be individualists and insist on refusing personal contact or an exchange of ideas with others in like positions. We cannot refuse to face the fact that sound progress cannot be accomplished except through the sincere co-operation of all who are responsible for the manufacture of pulp and paper and that the progress of any industry depends largely on the new ideas of energetic superintendents. It is for this purpose that the American Pulp and Paper Mill Superintendents' Association exists."

Pointing to the need of constructive measures, he said that much work lay ahead in the direction of strengthening divisions and internal committees. The success of the association depended on the efficiency of divisional meetings, which gave those who were unable to attend national conventions a chance to improve their association privileges.

He paid a tribute to the generosity and filial piety of J. C. Kimberly in providing a substantial addition to the Institute of Paper Chemistry as a memorial to his father, the late J. A. Kimberly.

The association is now an incorporated body under the laws of the State of Ohio, in accordance with action taken at a special meeting in Buffalo, N. Y., on November 1, 1931, and during this year's annual convention the members would be asked to consider and ratify a new constitution and by-laws designed for the conduct of its affairs in a strictly business and legal manner.

President Kelly said that the officers of the association desired it to act as an employment agency for any mill in the United States or Canada, whether or not it holds membership.

He urged the prosecution of an intensive membership campaign, and advocated the creation of a special membership committee consisting of three members at large and the chairman of each division. By concentrated effort of this kind, the membership could be increased fifty per cent.

He said a word for concerted co-operation. There never was a time in the last thirteen years when co-operation was more necessary, and cutting loose from or refusing to join associated activities at this time was short-sighted economy and would eventually be regretted.

President Kelly brought his address to a close with expressions of appreciation for the support he had received from his co-workers in the association.

Committees on audit, nominations for officers and resolutions were then named by the chair, after which the reading of papers was taken up, the opening one being on a new structural material called Micarta.

Uses of Micarta in the Paper Industry

Micarta, a strong, dense material made by hot pressing sheets of fabric material which have been previously impregnated with an organic binder, was said by Stephen A. Staege, of the Westinghouse Electric & Manufacturing Company, to be coming into extensive use in paper mill applications. Micarta has great resistance to wear and can be molded and machined. It is a light substance weighing only about half as much as aluminum and yet has high strength though not as hard as steel. It is made in the form of tubes, plates, angles, rods and solid blocks, and can be fabricated by cementing together, so that structures of almost any shape can be built up—tanks or tank linings, conduits for a flow of stock; save-all pans, etc.

Doctor blades is one of the applications where Micarta has been extensively used, according to Mr. Staege. On press rolls Micarta produces less wear on the roll and does not wear rapidly itself. Used on dryer rolls there was no tendency to cut and a light film which is deposited on the rolls was useful in preventing rusting.

As bearing linings, Micarta is wound edgewise and molded so that the grain is radial. This type of bearing is represented as being good for pressures up to 2,000 lb. per square inch and either oil or water lubrication can be used. The fact that water lubrication is satisfactory for Micarta bearings points to its use in stock chests, vats, pumps and other places where it is difficult to maintain oil lubrication.

A graphitized Micarta is available and this is said to have marked advantages over graphitized bronze or babbitt bearings. Graphitized Micarta bearings are used in out-of-the-way places and where lubrication is difficult or likely to be forgotten or overlooked.

Micarta-covered tube rolls are a novelty. An aluminum tube roll covered with Micarta resists corrosion and has a low coefficient of friction so that the wear on the wire is reduced to a minimum.

Many other applications of Micarta were described, ranging from flat-box covers to fourdrinier shake springs, besides uses in other industries as airplane firewalls, cabin linings, wing covering, pulleys, not to speak of friction disks and gears and numerous other applications.

Mr. Staege said that the possible uses of Micarta in the paper industry had hardly been touched and that many new uses will undoubtedly be discovered for it.

Discussion of the paper was invited and Harry C. Busser, of the York Haven Paper Co., made inquiry as to the com-

parative cost of micarta and lignum vitae. He was told that the cost was about the same, but micarta lasted longer than wood.

Charles H. Kephart asked if any mills were now using micarta. Mr. Staege said that he knew of instances where micarta had been used for replacements, but was unable to name mills having complete installations.

In response to queries by others, Mr. Staege said micarta was tough but not so strong as steel or bronze, but it answered admirably for the construction of doctor blades.

John V. Ziemann said he had been advised not to use micarta on dryer bearings because it would not withstand high temperature, and President Kelly testified that he had been using micarta with 30-lb. pressures which meant a heat of 270 deg. Fahr., which was a higher temperature than that named by Mr. Ziemann.

Table rolls of micarta acted well, Mr. Staege said, and were to be preferred to aluminum rolls, since the weight of micarta was half that of aluminum.

The next paper on the program was one by C. H. R. Johnson, of the Downingtown Manufacturing Co.

Water Removal on the Cylinder Machine

The removal of water in the process of manufacturing board on the cylinder machine was the topic of Mr. Johnson's paper on "The Downingtown Extractor for Cylinder Machines." He began with a reference to the state of overproduction which characterizes the paper industry. It is a condition which has been brought on largely by slackened demand. Machine builders are aware that manufacturing cost in paper and board mills rise in corresponding degree to any falling off in demand and have aimed to offset high costs by effecting improvements in machinery. In the board industry an opportunity was found for this in improved means for water removal on the cylinder machine.

The Downingtown extractor is a new and novel press for removing large quantities of water from the sheet after it comes off the last cylinder mold. This it was pointed out is the logical point in the manufacturing process to remove water because the sheet enters the last mold with a minimum content of water.

The Downingtown extractor was described as a wire-faced bottom roll having a stiff cast iron core on which heavy cast bronze spiders are mounted. The spiders support brass rods on which the copper winding wire is wound. There is a top roll mounted on anti-friction bearings like the lower roll. The cast iron core of the top roll is covered with rubber and equipped with a slice to handle the volume of water which comes up through the pick up felt. Pictures were exhibited showing the construction and method of installing extractor rolls. A single installation at the mill of the Consolidated Paper Company, Monroe, Michigan, was illustrated diagrammatically.

Some interesting information on nip pressures of molds and presses on cylinder machines was given. It was shown that the nip pressure in pounds per square inch obtained with the Downingtown extractor represented 50 to 100 lb., which comes within the range of primary presses and makes it possible to send a dryer sheet to them. Water removal tests with extractors gave a range of 2 to 3 lbs. of water per pound of dry finished paper. Data were given of results obtained in a number of typical installations in order to demonstrate the advantages of the Downingtown extractor. The operation of the extractor was illustrated by means of lantern slides.

There was no discussion, though a question was asked concerning the life of the wire on the machine, and there was another query as to its use on a pulp drying machine. Mr. Johnson said he had had no experience of its use for this purpose, but failed to see why it could not be used.

This concluded the business of the forenoon sitting.

Afternoon Sitting, June 2

The first paper at the afternoon sitting was entitled "Late Improvements in the Design of Papermaking Equipment."

Improvements in Design of Papermaking Machinery

An account of recent improvements in the design of papermaking machinery was given in this paper by P. M. Foster, of the Beloit Iron Works. A new supershake applied to the fourdrinier tables was spoken of as probably the most important development for the improvement of quality in paper. The characteristics of an effective shake were described, effective in the way of improving formation and finish at high speeds. Old-style fourdriniers can be equipped with the super-shake, only a few minor alterations being necessary.

The rubber-covered suction press roll made for an improvement in quality and the reduction of manufacturing costs of paper, Mr. Foster said. It increases felt life from two to five times over that obtained from an uncovered suction press. By its use one felt can be eliminated on tissue machines, the suction roll being used as a pressure roll. An advantage of it is that it will not mark papers that are susceptible to marking, and supercalendered papers can be finished with less pressure so that increased bulk is obtained.

Mr. Foster read letters from users which testified to increased production and longer felt life. He said that many mill officials consider the rubber-covered suction press to be the most outstanding recent improvement to paper machines.

Winders and slitters were discussed. The modern winder is equipped with an automatic roll unloader which consists of an hydraulic cylinder or an electric motor which actuates an ejector roll through the medium of heavy gearing. The ejector roll swings in an arc up and from behind the wound roll of paper smoothly and easily rolling it out upon unloading forks which swing up into a horizontal position, as the ejector roll moves toward the roll of paper. By pressing a button or the turning of a valve handle the unloading forks lower the roll to the floor or onto several low trucks. It is then rolled out of the way and the shaft is withdrawn. Meanwhile the winder is winding another roll.

He spoke of the automatic winder equipment used on the two 234-inch high-speed kraft machines in the Southern Kraft Corporation Mill, at Panama City, Florida, the latest development in this type of winder, and described its operation. Its value could be appreciated, he said, when it was known that the handling by man power was eliminated when making counter rolls to the amount of over 3,000,000 lb. a day.

Another piece of equipment which received attention was the Beloit magnetic clutch for heavy-duty paper mill service. This is a clutch which can be quickly and easily adjusted.

Carbon steam fittings are distinguished by being oilless and frictionless. In speaking of these fittings which have been in use for more than ten years, he said they could be furnished in a new type for installation on existing machine dryers at a saving in power, oil and maintenance that would pay for themselves in a short period.

There was no discussion. Tom Harvey was invited to take the chair in place of President Kelly, who had been called to a meeting of the Executive Committee, and Dr. W. H. Charch, of the DuPont Cellophane Company, was invited to address the gathering on "Relation Between the Technical Department and the Operating Department." He made an address which was so much appreciated that Chairman Harvey said he would take it upon himself to request the Executive Committee to have it printed as a separate pamphlet and sent out broadcast to the superintendents of the country.

Functions of a Research Worker

Dr. Charch outlined the purpose and function of a technical or research department. He said that the ultimate purpose of a technical man was no whit different from that of a salesman or the president of the company. He was out to make money for the company only with different tools and methods. It was well known that research could produce great results, but the problem was how to steer it on a true course and avoid the rocks of failure. The first requisite was the employment of the best man or men the industry could afford and let them have a free hand in the solution of problems. One weakness of those directing research men was to put such men on a trivial job. The choice of problems should be governed by the likelihood of their being solved, and the technical man should be left free to solve his own problem. If he is unable to master his task, there is nothing for it but to let him go.

Dr. Charch said research was capable of paying large dividends and was to be considered as a systematic method of

making money for the firm that supports it. He instanced cases of large returns from investments in research.

Tom Harvey was the only member who discussed the paper and he was severe in his strictures of mill executives who were blind to the advantages of encouraging superintendents and technical men to develop their inventive faculties.

Proposed Study of Obsolescence and Depreciation

Following Dr. Charch, Joseph H. Wallace, of Black-Clawson Co., was asked to present his views on the subject of "Depreciation and Obsolescence in Pulp and Paper Mills."

Mr. Wallace is convinced that the Income Tax unit of the Bureau of Internal Revenue is employing an antiquated and unfair method of determining rates of obsolescence and depreciation of machinery and was outspoken in his criticism. He advocated the formation of a committee of experts to study the subject and work out a general formula for the benefit of both the income tax authorities and mill executives, the committee to consist of representatives of the Superintendents' Association, the Cost Department of the American Paper and Pulp Association and the Technical Association.

Pleads for Reserves—Earlier in his talk, he spoke of the necessity of including reserves for depreciation and obsolescence in a sufficient amount to replace machinery as soon as better machinery was available. Mr. Wallace regards figures of costs of production as of no value; they were indeed misleading and dangerous without reserves.

Here and there throughout his address, were embodied bits of sound advice to the superintendents before him and he indulged in quips of humor to put his message over. He counselled his hearers to be liberal with suggestions and advice to the managers of mills when they saw possibilities of improvement, saying: "You papermakers are often lax in pushing. If you see a possible improvement likely to pay a good return, it's your job to fight for it. It is what you are paid to do. Don't excuse your faults, or that of your mill, by citing others equally bad. It won't fool your balance sheet. The value of each piece of equipment is determined not by what it has done, but by what it can do in competition today and tomorrow."

Mr. Wallace is nothing if not entertaining, and by way of giving the men something to think about concerning past and present performances, he made some comparisons of a decade of progress between 1920 and 1929, giving credit to a book entitled *Only Yesterday*, by James Lewis Allen, for his figures. He cited the following enumerations:

In 1920, there were 6,000,000 pleasure cars; in 1929 there were 24,000,000.

In 1920, no radios existed and broadcasting was unknown; in 1929 $840,000,000 was spent on radios.

Rayon, cigarettes, cosmetics and electrical toys took women out of the kitchen which grew smaller until it disappeared behind a closet door.

More money is spent on cigarettes than on education.

Gloria Swanson, Douglas Fairbanks, Clara Bow and Valentino became the most discussed personages of their era.

The monthly attendance at movies in 1929 was more than four times the population of the nation.

The purchasing power of money increased 25 per cent in the 20's.

High power salesmanship, electrons, hormones, endocrines, reflexes, psychoses, chromosomes and inhibitions became subjects of common discussion; sin became obsolete; intelligence tests invaded schools and business; so-called intellectuals, their eyes opened by Mencken, believed in sex freedom and frank discussions thereof and apparently in its continuity.

And they laugh at the Gay Nineties!

Prohibition has developed a dislike of censorship; liberty has become a joke; tolerance is a god; reform a term of contempt. Debunking was a favorite pastime during the 20's; disillusionment a battlecry; romance went to quantity production.

Commenting on the facts and figures displayed by Mr. Wallace, it was remarked by Tom Harvey as a marvellous thing that there were men in the hall who had seen the speed of a newsprint machine increase from 100 ft. and less to 1,400 ft. per minute.

Band Concert by The Carborundum Band

Following the afternoon sitting which was adjourned shortly after 4 o'clock, the members and visitors were invited to a band concert in the grand ballroom of the Statler Hotel, where it was promised they would be initiated into the mysteries of broadcasting.

This proved to be a rare treat which was enjoyed through the courtesy and generosity of The Carborundum Company, Niagara Falls, N. Y., who manufacture, among a diversity of other things, artificial pulpstones for the production of groundwood. In compliment to the members and guests of the association, a band of fifty or more pieces—The Carborundum Band—gave a delightful program of music, the first half of which was broadcast over Station WGR, directed by Edward D'Anne, the announcer being Francis D. Bowman, advertising manager of The Carborundum Company.

The program opened with the playing of an Indian theme song dedicated to Fred C. Boyce, a former president of the association. The dedication was quite appropriate as Mr. Boyce is a chief of the Winnebego Indians and bears the tribal name of "Wo-Sha-Wah-He-Kah" (he who brings good cheer). In succession, the band played "New England's Finest," dedicated to President Roy H. Kelly; Boston Commandery March, dedicated to Vice President Wm. H. Brydges; the finale to Tschaikowsky's Fourth Symphony, dedicated to Fred J. Rooney, and the Chicago Tribune March, dedicated to Vice President J. Bertwell White.

At the end of the broadcast, the program was continued with several most pleasing numbers, one of which, a selection from "Eileen" by Victor Herbert, was dedicated to Mrs. Roy H. Kelly. Never in the history of the association has a more agreeable form of entertainment been provided as this classical program of melodies by The Carborundum Band.

Group Meetings Thursday Evening

A series of meetings took place on Thursday evening for the discussion of papers and problems relating to the manufacture of Paperboard, Book and Fine Papers, Groundwood, Sulphate and Soda Pulps, Sulphite Pulp and Tissue Paper, the respective chairmen being, Lee Wilson, Charles Champion, William H. Brydges, G. M. Trostel, Morris W. Hedden and H. H. Harrison.

Meeting of the Board Group

The Board Group meeting on Thursday evening was presided over by Lee Wilson of Morris Paper Mills Co., Morris, Ill., who introduced Tom Harvey of the Enterprise Machine Co., Middletown, Ohio, as the first speaker on the program.

Mr. Harvey presented a paper on "The Advantages and Savings Offered by the Enterprise Compensating Drive." In his paper he emphasized the need of such a drive and cited a number of causes of short felt life and other troubles experienced in the operation of cylinder machines on certain grades of paper, such as corrugation of rubber rolls and "checking" of sheet.

Results obtained from the installation of the Enterprise Compensating Drive on several different machines operating on board or tissue papers show remarkable increase in felt life, and indicates definitely that it is possible to operate main press rolls of different diameter without experiencing any trouble in the production of paper, as both the top and bottom rolls are driven at the same peripheral speed.

Several members present, following Mr. Harvey's paper, told of the success of the drive in their individual mills. Among these were William H. Sievert of Michigan Carton Co., Lee Wilson of Morris Paper Mills, and Roy H. Kelly of Marathon Paper Mills Co. All of the comments of these men were very favorable to the drive.

The second paper of the Board Group meeting was presented by J. A. Hamm, of Shartle Brothers Machine Co., Middletown, Ohio.

New Type of Vat for Cylinder Machines

A new type of patented vat, known as Uni-flow, was described by Mr. Hamm, a comparison being made between it and the vat in common use. The new vat is analogous in some respects to the fourdrinier machine. The stock enters a compartment corresponding to a headbox and flows over baffles which keeps

the stock mixed and thence to the cylinder in the same direction the mold travels. Two adjustable members control the entrance of stock to the mold. The sluice is adjustable to or from the mold and the apron board up and down from the mold. Illustrations of the operation of the adjustable sluice were given. Pressure and vacuum are both used for forming the sheet. Thin stock can be run with this type of vat and this favors good formation at high speeds. A method of measuring the flow of stock is provided by a Pitot tube. Once the Pitot reading is known and head measured, the velocity of flowage can be set with adjustable members at known distances. Speeds of 500 ft. with a 30-inch mold have been reached, but the Shartle Brothers Machine Company recommended a 48-inch diameter of mold on tissue and higher speeds on board machines, up to 450 ft. a minute as more desirable installation. It was stated that either a fourdrinier-like formation or a straight cylinder formation is possible in the same vat by adjusting the sluice, apron and overflows, and on a multiple cylinder machine it is possible to laminate the sheet in alternate cylinder and fourdrinier formation. With a new Uni-flow vat, formation and quality can be improved and these are the two most troublesome concerns of the papermaker, Mr. Hamm said.

Considerable interest was manifested by the superintendents in this paper and several questions were asked Mr. Hamm following his paper for more detailed information than had been included in the paper.

The discussion of Mr. Hamm's paper was followed by a questionnaire period lead by Tom Harvey. During this period, a number of questions pertaining to the operation and construction of a cylinder machine were asked and opinions obtained from those in attendance. It was interesting to note the divergence of views of different superintendents on some of the questions, this being due probably to differences in individual experiences and the lack of fundamental scientific data on some of the points.

At the group meeting of Book and Fine Paper superintendents, there was a discussion of "The Permanence of Paper," by B. L. Wehmhoff, of the Government Printing Bureau, Washington.

Researches on Deterioration of Paper

Mr. Wehmhoff gave a most interesting historical account of researches on the causes of deterioration in paper, from the earliest research recorded, that of the German government between 1885 and 1896. As a result of this work an elaborate classification of paper was drawn up.

Dr. W. Herzberg, of the Royal German Testing Laboratories, examined 435 samples submitted by the University of Berlin Library from works intended for permanent record. Only a small proportion of these were printed on all-rag paper. A small percentage, 1.6, of the total number of samples complied with the strength requirements. As a result of this investigation in 1908, it was recommended that paper of definite strength requirements, made from pure rag fiber, be used for valuable books and treatises.

It was not until 1904 that the United States Government took official action to investigate the subject of suitable papers for government purposes through the Bureau of Chemistry. Some 5,000 samples of paper were examined and reported on. Subsequently the Joint Committee on Printing of Congress named a commission to study the matter, and a report by this commission was adopted December, 1911. The result was the adoption of a specification for a permanent paper, the stock of which was to be not less than 75 per cent rag, the remainder to be of bleached chemical woodpulp, free from unbleached or groundwood. Since then all paper purchased by the Government has had to answer certain requirements covering both physical and chemical characteristics.

That there were other factors besides quality of paper to be considered was recognized by the American Newspaper Publisher's Association, storage and atmospheric condition being deemed destructive to permanency. In support of this contention a book printed about a hundred years ago on mechanical wood paper, which was in good condition owing to proper storage, was instanced.

The question of paper permanence has come to be of such international importance that the League of Nations has appointed a committee of experts to consider the subject. One recommendation of this committee is of particular interest to paper manufacturers. It reads:

"A preference at the present state of the manufacturing process to be given to unbleached rag paper; it being understood that new processes of treating cellulose may in the future provide paper of lasting quality."

The U. S. Bureau of Standards has made a study of the permanence of record papers, the results of which are given in B. of S. Research Paper No. 349.

The accelerated aging test for paper is of doubtful value and investigators do not all agree on its value of determining the proportion of alpha cellulose present. There is more agreement in the case of copper number and acidity, both of which should be kept as low as possible.

Rosin appears to have an adverse effect on the life of paper when present in excess of approximately 1 per cent, and all permanent paper classifications now state the maximum amount of rosin which will be permitted.

The conclusions of Mr. Wehmhoff are that the length of time any paper can be expected to last depends on the quality of the paper itself and the conditions under which it is stored. The question of storage is deemed of primary importance by English government authorities, who point to the fact that books printed forty to fifty years ago on paper containing esparto and chemical wood fiber have not deteriorated under good storage conditions, whereas paper made from rags kept in an impure atmosphere have shown marked deterioration.

Papers were also presented by A. F. Francis, of the Milwaukee branch of the Chromium Corporation of America, on "Products and Equipment Standardized and Improved by Use of Chromium," and C. H. Kent, of Mansfield, Bolton & Kent, New York, on "Delthirna Sizing."

Summaries of the papers discussed by the Groundwood Group indicate that control of quality and quantity of production received chief consideration.

Temperature Control in Grinding Wood

An instrument for controlling woodpulp grinding temperature formed the subject of C. D. DeMers's paper bearing the title "Maximum Production of High Quality Product at Minimum Cost." The instrument has been developed by the Taylor Instrument Companies of Rochester, N. Y., and is said to be extremely sensitive, the control being constant and within the limits of plus or minus 1 deg. Fahr. The control point can be changed at will by the operator, and in starting up after a shutdown, the temperature can be brought up gradually to the operating point.

In another part of the paper, an automatic control system for sulphite cooks was described. This Tycos system in its application to sulphite cooking was said to eliminate the personal equation during two of the most critical periods in the cooking cycle: the penetration period and the temperature rise and hold period. The point was made by Mr. DeMers that close control of these important variables in the cooking process eliminated the most common sources of trouble encountered in sulphite digester operation.

The Story of a New Grindstone

Under the name, "Aloxite Brand Pulpwheel," The Carborundum Company is introducing a new wood grinder, the construction and properties of which were described by A. L. Ball, of The Carborundum Company. He told in detail of a lengthy series of experiments leading to the production of the artificial abrasive which is incorporated into the Aloxite brand pulpwheel. The substance of the stone consists of vitrified bonded fused alumina. By "vitrified bonded" is meant that the material which bonds together the grit particle of fused alumina has been heated at an intense heat and vitrified, thereby surrounding and obtaining a very firm grit upon each abrasive particle. Fused alumina was selected because of its hardness, crystal shape and ability to rub and not cut the fibers from the log. The pulpwheel, as The Carborundum Company calls it, is compensated to withstand temperature changes or adapt itself to them. The grinding surface is capable of being burred, but Aloxite does not require frequent burring. The stones have a high resistance to crushing stresses so that they can stand heavier loads than a natural stone.

In summarizing the characteristics of the Aloxite brand pulpwheel, Mr. Ball made the following points: (1) Abrasive composed of crystals whose shape is

perfectly adapted to produce pulp; (2) joints which are constructed thin and biased; (3) a structure fully reinforced for safety; (4) complete compensation for temperature changes; (5) available abrasive extending to the flanges; (6) long life and low cost per ton of pulp.

An exhibit of the wheel was available for the inspection of members in the hotel lobby.

Developments in Groundwood Manufacture

An interesting review of progress in the manufacture and control of groundwood was given in the paper by Mr. Gardner. After touching on the burring of stones, their types and speeds, temperature and consistency at grinders, pressure and other factors in the production of groundwood, Mr. Gardner said that scientific regulation of groundwood pulp began with the use of the freeness tester, several of which are now on the market. Davis and Simerl in a paper presented at the fall meeting of T. A. P. P. I., September, 1930, gave curves and equations for the interconversion of scales for six freeness testers (see THE PAPER INDUSTRY, September, 1930, p. 1050). Although the method referred to has made for simplification, it is still necessary to mention the type of testers when speaking of freeness.

Mr. Gardner appears to favor the measurement of fiber length by means of a fractionating screen. In this method a set of four screens is used, each screen having a different cut plate. The stock flows from one screen to the other, the flour passing through the last or fine screen. The stock on each of the four screens is then weighed and the percentage of each fraction computed, which gives a measure of the uniformity of the groundwood fiber.

Meeting of the Sulphate and Soda Pulps Group

The Sulphate and Soda Pulps Group held a protracted session on Thursday evening, discussion of the recovery systems used with these pulps being engaged in by an interested gathering of specialists until one o'clock Friday morning. The greater part of the time was occupied in the presentation and discussion of the waste heat boiler and reclaiming unit of the Murray Manufacturing Co. as operated at the mills of the Champion Fibre Company at Canton, N. C.

The Champion Sulphate Reclaiming System

C. G. Klopp, chief engineer of The Champion Fibre Company, described and illustrated the installation which is a modified form of the old Swedish type of black liquor recovery system, consisting of a disk evaporator, a rotating incinerator and two smelters. The disadvantage of the Swedish system is the admission of large quantities of excess air which is deterimental to heat recovery.

Important Improvements—The outstanding improvement effected at the Canton plant consists of means for recovering waste heat as well as chemicals. A water-cooled lip at the discharge end of the rotary makes it practicable to use the closed type for the purpose of controlling air according to the combustion requirements. In this way, more heat is made available than can be used to advantage in the disk evaporator alone. The boiler has, accordingly, been introduced between the incinerator and the disk evaporator for the utilization of reclaimed heat from excess air losses.

Features of the Champion Unit—Mr. Klopp gave a general description of the construction and mechanical features of the reclaiming unit, followed by an account of its operation and maintenance, and of its performance. He gave the dimensions and equipment of the dissolving tank, which is equipped with an agitator driven by a 10-hp., 860 r.p.m. motor through a D. O. James reducer.

The Smelter—Describing the smelter, he said it was of cylindrical form, of double shell construction. The space between the shells is used for heating the air supplied to the blow nozzle of the smelter. Air enters this space through a 10-in. flanged nozzle near the bottom, and after making three passes across the diameter of the smelter leaves near the top whence it is piped to the blow nozzle.

The bottom of the smelter is of concrete lined with soapstone blocks 12 inches thick. A water pan 10⅞ inches deep surmounts the smelter, roust holes, cleanout holes and a 30x57-in. opening for the smelter-incinerator connection being provided in the water pan by welded plates. The air supplied for smelting is supplied from a Roots blower, two of those with an individual capacity 4,000 cu. ft. a minute being run in parallel to supply the air for three Champion units. The distribution of air throughout the smelter bed is accomplished by means of a water-cooled, cast-steel blow nozzle located 24 inches above the bottom of the smelter. A 10-inch blowpipe, water-cooled wherever exposed to the heat, supplies air to the nozzle.

A Water-cooled Connection — The smelter-incinerator connection is water-cooled. Through this pass the gases formed during the reduction and smelting processes, the charred granular ash from the incinerator falling through the gases into the smelter. An observation door is provided, as well as three 8-inch air ports which may be opened or closed according to combustion requirements.

The incinerator is a rotary, 9 ft. in diameter and 20 ft. long, of ½-inch steel plates, lined with 9 inches of firebrick. The incinerator makes one and a half turns a minute. Details of the driving mechanism were given.

Liquor is fed into the incinerator through a 4-inch water-cooled pipe extending through the neck, or connection between the incinerator and the combustion chamber.

The Combustion Chamber—The design of the combustion chamber came in for marked attention. The gases on leaving the 45-inch diameter neck of the incinerator make a right-angled turn downward into a vertical shaft leading to the combustion chamber, which is a fire-brick lined steel casing 17 ft. long by 7 ft. wide and 6 ft. high. The arch of the chamber, as well as the top of the 6 ft. diameter shaft, is water-cooled. Two drag-chain conveyors running in a cooling bath of weak liquor carry accumulations of ash or smelt to collecting boxes on the outside. Chemicals reclaimed in this manner are conveyed by the weak liquor to the dissolving tank intermittently.

Advantages of the New Design—Mr. Klopp referred to some of the advantages of this design of combustion chamber. For instance, 30 per cent less arch area was required for a combustion chamber situated below the incinerator and boiler than for one placed above them. The gases in making a reverse turn from a downward to an upward flow tend to throw out the heavier particles of ash that might be carried along.

Speaking of the boiler used in this installation, he said it was a 600 hp. Hedges-Walsh-Weidner vertical fire-tube boiler 10 ft. in diameter and 23 ft. 4 in. high. The steam pressure carried is about 135 lb., but it was built for a working pressure of 150 lb. Four thousand square feet of heating surface is provided by 210 4-in. No. 10 gauge seamless tubes. An easy means for periodical cleaning of the internal surfaces of the boiler tubes is provided by a mechanical soot blower suspended from the breeching above the smoke hood. Jets of steam are directed into the top openings of the tubes.

Construction of the Disk Evaporator—The disk evaporator consists primarily of a sheet metal tank in which four baffle wheels arranged in pairs revolve. The liquor tank has a center compartment of the same length as the tank. The liquor enters this compartment and then circulates into the two side compartments through openings 16 inches high at either end.

Following the Path of the Liquor—In describing the operation and maintenance of the reclamation unit, Mr. Klopp followed the path of the liquor from the time it entered the disk evaporator until it left the spout of the smelter, giving details of equipment in its course.

Reduced to charred ash, the liquor passes to the smelter, where it has been found that best results are obtained with the smelter from half to two-thirds full. In the smelter, the chemicals are decomposed, carbon monoxide and dioxide being formed from reactions between the carbon and organic material, while the sodium sulphate is reduced to sodium sulphide, part of its oxygen being given up to the carbon.

Maintenance Costs Are Light—As to maintenance, the smelter and incinerator linings were the only considerations worthy of mention. The smelter lining consists of approximately eighty-eight square feet of soapstone blocks for the bottom and 330 feet for the inner shell. The bottom lining needs renewal about

once every ten months and the inner shell every two years.

This recovery system provides chemicals for cooking from fifty to sixty tons of pulp a day, depending on the grade of pulp made.

Progress in Sulphite Engineering

Interesting papers on the equipment of digesters and the production of sulphite gas featured the proceedings of the Sulphite Group, and Carl Jentz, of the Champion Fibre Co., gave an interesting account of the evolution of sulphite manufacturing based on forty years of practical experience.

The Technology of Stainless Steel Alloys

A major problem in the sulphite industry is the procuring of metal equipment, pumps and valves which will resist the attacks of corrosive acids. In his paper on "The Use of Allegheny Metal (18-8 Stainless) in the Sulphite Paper Industry," Doctor VanDyke, manager, alloy and special steel division, Joseph T. Ryerson and Son, Inc., gave a remarkably clear and understandable account of the development of research in the production of stainless steel. He gave a definition of the term "austenitic alloy" and what it means to stabilize the austenite. First, however, he explained why some 18-8 stainless steels gave way or prove failures with sulphite liquor. The failures were not due to corrosive action, but to a destructive effect on the strength of the metal, under which it cracks and breaks. It is a type of action which is known as intercrystalline corrosion. He discussed the causative factor of this cracking of the metal in the case of chrome-nickel stainless alloys and showed that the cause of failure lay in a breaking down of the intercrystalline cement or bond holding the crystals of metal together. Steel is a combination of carbon and iron. In the 18-8 stainless steel, the carbon is in solution in the iron, and this type of stainless steel, combined with chrome and nickel, is called an austenitic alloy, which means simply that the carbon is in solution in the iron; it is in this form that the metal is most resistant to corrosive attacks. Details were given of the appearance of austenitic 18-8 under the microscope before and after heating. Application of certain degrees of heat during certain periods of time to an austenitic alloy will throw some of the carbon out of solution when it combines chemically with some of the iron to produce iron carbide. After this takes place, part of the alloy is no longer austenitic because all of the carbon is not in solution in the iron. Disastrous results may be expected when the metal has been exposed to a strong corrosive attack. It is supposed that an electrolytic action is set up which destroys the bond between the crystals and thus renders the material weak and unable to withstand the chemical strain.

Study of the subject, combined with scientific research, has resulted in means of overcoming the tendency of steels to lose their austenitic property. The addition of certain alloys stabilizes the austenite, the additions in the case of 18-8 being chrome and nickel.

Doctor VanDyke said it had been suggested that the addition of molybdenum to the chrome-nickel stainless steel improved its resistance to sulphite liquor, and while he believed this to be true, he did not at the same time believe that the improvement was as great as that derived from the addition of a higher percentage of the combined chrome-nickel alloy content.

He gave instances of the durability of stainless castings which had been furnished to pulp and paper mills during the past four years and reported cases of valves used in a sulphite-liquor circulating system that were in perfect condition after a service of more than three years. Pumps of Allegheny 18-8 stainless metal were also instanced for their resistance to corrosion, vibration and stresses.

This was followed by a study of "Recent Developments in Sulphur Dioxide Gas Producing Equipments."

Spray Sulphur Burner

The paper by S. F. Spangler, of the Chemical Construction Corporation, New York, was of special interest to sulphite engineers and superintendents. It described a new form of sulphur burner in which the sulphur is atomized and sprayed into a furnace to form sulphur dioxide, the strength of which may be held automatically within a range of plus or minus one-tenth of one per cent by controlling the speed of the sulphur pumps, it being possible to produce a gas of strength up to 18 per cent SO_2 without sublimation of sulphur. No dilution of the gases is possible, as the entire system is encased in steel and the full concentration of sulphur dioxide is delivered to the absorption tower. An ore-burning system is also made and marketed by the Chemical Construction Corporation.

In describing the furnace and spray burner, it was stated that the furnace proper takes the form of a horizontal cylindrical steel shell lined with insulating brick and fire brick. The spray burner which delivers a spray of molten sulphur to the interior of the furnace consists of a steam-jacketed pipe with a small orifice projecting into the furnace.

The sulphur is melted in a pit by means of steam coils. A pump is immersed in the molten sulphur and connected by piping to the burner.

The furnace is supplied with an oil burner for heating the furnace brickwork when starting operations. This permits of attaining full sulphur capacity quickly. A small waste heat boiler in connection with the oil burner generates more than sufficient heat for melting the sulphur and operating the sulphur pumps, with an excess sufficient to operate the air blower without using any external power. A unique advantage possessed by this burner and furnace is that the supply of sulphur dioxide gas may be stopped instantaneously by stopping the sulphur pump. The blower handles only air and may be of ordinary steel construction. The process and construction of apparatus are protected by patents.

At the group meeting of tissue paper superintendents, papers were read bearing the titles "Rubber Covered Suction Rolls and the Single Felt Tissue Machine," by P. M. Foster, Beloit Iron Works; "High Speed Cylinder for Tissue Machines," by A. S. Clark, Clark Manufacturing Co.

Friday Morning's Sitting

At the morning sitting on Friday, which was opened by President Kelly at ten o'clock, three papers were read and discussed, followed by a business session for the adoption of amendments to the Constitution and By-Laws and the election of officers to serve during the ensuing year. The first paper on the program, "Pulping Woodpulp and Paper Stock," was read by M. M. Klosson, Buffalo Pumps, Inc.

Pumping High-Consistency Stock

Problems and difficulties encountered in the pumping of woodpulp and paper stock formed the subject of Mr. Klosson's paper. Stock is now being handled at higher consistencies in paper mills and it is necessary for a pump engineer to understand not only the more important factors affecting centrifugal pump performance, but to have a good understanding as well of paper manufacturing processes.

As an example of a problem that is occasionally brought to notice, a certain paper mill used a high consistency pump to feed beaters with unbleached stock at 6 per cent consistency. Actually, the pump handled the stock for more than a year at a consistency varying up to 8 per cent. Later the system was changed to soda pulp and it was found that the same pump, under identical operating conditions, could not handle the soda stock above about 5 per cent consistency. A careful study of the new stock was made and with the installation of a new rotor it was possible to handle the soda stock at the required consistency. It was noted that stock of from 4 to 4½ per cent consistency was no longer considered high because of the many successful pump installations handling soda, sulphite, kraft and paperboard stock above 6 per cent and in some cases up to 8 per cent consistency.

Mr. Klosson pointed out that trouble with pump performance did not always lie in the characteristics of the stock but in the pump itself. By means of illustration he showed the causes of faulty performances. It was a mistake to base a pump selection on its performance with water as this was a misleading basis and its performance with stock should be a criterion. Thus, a pump delivering 3,000 g.p.m. of water against a 70-ft. head with 76 per cent efficiency, cannot deliver more than 2,400 g.p.m. against the same head and with a maximum of 62 per cent efficiency when pumping 4 per cent stock. If the pump had been selected for 3,000 g.p.m. on a water basis, it would be about 20 per

cent lower in capacity and about 26 per cent below water efficiency. It was necessary, therefore, to consider internal hydraulic pump losses, which increased rapidly with increased consistency of stock. Generally a larger impeller and a larger motor overcomes the difficulty.

The burden of his argument was the designing and selecting of pumps independent of water performance. He gave a number of illustrations of pumps operating under unusually extreme and interesting conditions to show the range of applications that had been met successfully. In regard to the clogging of pumps, he said that properly designed pumps do not clog, but may fail to handle stock beyond a certain consistency, the inability being due not to clogging, but to design, conditions of installation or chemical conditions of the stock.

There was no discussion of Mr. Klosson's paper, and L. M. Booth, Booth Chemical Co., Elizabeth, N. J., who was on the program for a paper on "Sheet Formation Control," came to the platform.

Importance of Water in Sheet Formation

In introducing his subject, Mr. Booth delivered himself of a little homily on the appreciation of opportunities. He said that one of the measures of man's efficiency was his ability to evaluate the relative importance of the multitude of opportunities with which he is confronted. "Shall he do *this*, or is *that* more important? Shall he go to the movies for amusement, or shall he stay at home and read something instructive? Both amusement and instruction are desirable, but which, at the particular time considered, is the more important?"

He then pictured the executive head of a firm analyzing his affairs in periods of curtailed activities and diminished budgets with a view to disclosing that element which might be deemed most timely for his consideration. Turning to the problems of papermaking, Mr. Booth discussed sheet formation and the two essential elements concerned in it—stock and water. He did not agree with those papermakers who regard the water used in the formation of a sheet as of minor importance. He called attention to the fact that water as we know it in industry is never pure, never free from dissolved solids and gases. It is dilute solutions of this kind with which we have to deal in the paper mill and refer to as water.

Waters are known to differ widely in their composition and quality. The quality of the recirculated dilution water has an important influence on the quality of sheet formation, as has been determined by research.

Speaking of the work of the beater man and the machine tender respectively, he touched on the preparation of stock by chemical and mechanical treatment. The incorporation of size, alum, and color with the stock in the beater came under chemical treatment. The furnish, whether it consisted of new pulp or old papers, varied from time to time as regards its chemical characteristics, and as a result perhaps of some inadvertent or unexpected circumstances, related more or less to the changing chemical quality, the machine tender had difficulty in handling stock.

The controlling factor in good sheet formation is the recirculated water, and because of the management's failure to provide the machine tender with facilities to check the quality of water, this took the responsibility off the machine tender's shoulders. The quality of the fresh water employed was said to have little influence on sheet formation, as this represented but a comparatively small proportion of the 47,738 gallons of water which are used to make a ton of paper; if, for example, half per cent consistency stock is considered.

Mr. Booth spoke of the desirability of arousing papermakers to their responsibilities concerning chemical conditions prevailing in the water carrying the stock to the wire. Simple test methods are available.

The disadvantage arising from divided responsibility for sheet formation was particularly stressed by Mr. Booth, who contended that the business of controlling the quality of the water with which the sheet is formed was not a chemical laboratory job, but that the necessary routine tests should be made by the machine tender, seeing that they were simple and easy of application.

There was a discussion of acidity and alkalinity of white water and beater contents, as well as of the stuff flowing on the wire, led by William H. Sievert, of the Michigan Carton Co., Battle Creek, Mich., who wanted to know how the character of the white water could be determined, if not by pH determinations.

Mr. Booth explained that pH determinations were measures of intensity of acidity or alkalinity and were not quantitative tests. He pointed out that gases dissolved in the water caused explosive eruptions which interfered with good sheet formation.

Mr. Sievert said he had added alum to a beaterful of stock having a pH of 6 to bring it down to 4.3, but without avail, whereupon Mr. Booth expressed the opinion that he must be working with a highly carbonated water.

The remaining paper was then presented for discussion.

Regulation of Stock in Paper Manufacture

An interesting account of the Meyers-Mesco Regulator, its construction, application and performance, was given in the paper by Sidney E. Meyers, engineer, Merritt Engineering and Sales Company, Lockport, N. Y., in a paper bearing the title, "Automatic Control of the Consistency Variable in the Manufacture of Pulp and Paper." Among the important pulp mill applications of the regulator instanced by him was the regulation of stock admitted to bleaching equipment, in which the value of accurate accounting for weight of stock processed was emphasized. In paper mills, several reasons existed for automatic consistency regulation, such as maintenance of caliper or weight of the finished sheet; regulation in front of jordans to steady freeness values of the stock; for admission of stock to beaters for insuring uniformity. Stock regulation immediately ahead of the jordan is considered a necessity by many papermakers. Regardless of how uniformly the stock may be treated in the beaters, varying consistency at the jordan will upset uniform conditions.

Mr. Meyers spoke of the attention which careful operators are giving to the regulation and control of slushed half stocks which are being increasingly used; stock of this kind cannot be weighed by present equipment and it is only by regulating the density of the stock in tubs before delivery to the beater that they can be measured. Numerous other conditions, including prejordan regulation, were touched upon, the conclusion being that if weight control were paramount, the regulation must be at the machine stuff box, whereas if freeness control was more important, the regulator should be placed at the jordan inlet.

In the pulp mill, regulation should be done at a point prior to the admission of diluting water, best on blowpit stock just as it is pumped from the blowpit, and a regulator capable of passing knots, slivers and uncooked chips should be used. These requirements were met, he said, by the Meyers-Mesco consistency regulator. The theory of operation, construction, types and adaptability of the regulator were described in detail, illustrations of the parts being shown by lantern slides.

In a short discussion of Mr. Meyer's paper, Harry C. Busser, York Haven Paper Co., asked if accuracy of control would be affected by variations in frequency as affected by high or low water conditions—2½ cycles either way. Mr. Meyers stated that he had not any experience with a situation of that kind. However, his associate, Mr. Stanley, said that with an agitator using 60 r.p.m., the inaccuracy would be proportional to the variations in speed.

New Constitution and By-Laws

A business sitting was then convened, at which proposed changes in the Constitution and By-Laws were offered for discussion and ratification.

The full name of the superintendents' association is now "The American Pulp and Paper Mill Superintendents' Association, Incorporated," incorporation having been effected under the laws of the State of Ohio earlier in the year. The new Code of Regulations (Constitution and By-Laws) under the articles of incorporation was presented for ratification and adoption by the members at this sitting.

Herbert T. Randall, of the Champion Coated Paper Company, read the text of the document and indicated the principal changes affecting membership in the association.

Active members, according to Article III, Section A, are now confined to superintendents actively engaged in the manufacture of pulp or its conversion

into paper, and to superintendents of pulp and paper mill power plants. It is provided, however, that men in charge of departments who have the title of superintendent or other titles but whose duties are of an active and responsible nature in connection with pulp or paper mills, may be eligible as active members.

Associate membership, according to Section B of Article III, is open to any manager who is actively engaged in the manufacture and conversion of pulp or paper. No provision is made for the admission of salesmen of the paper industry or allied industries, and associate members are not entitled to vote or hold office.

A new grade of honorary membership is established. Honorary members may be elected by vote of the Board of Trustees or of the members. The qualifications of all applicants for membership are to be passed upon by a membership committee in whom complete sole power of election is vested. An affirmative vote of two-thirds of the members of the committee is required for election.

The Membership Committee is to be made up of the president and five living past presidents of the association.

In addition to the annual dues of five dollars, members may be assessed in sums decided upon by a majority vote of the members present at any regular meeting of the corporation.

The officers of the association are to consist, as at present, of a president and five vice presidents, as well as a secretary-treasurer. All but the secretary-treasurer must be active members of the corporation. The term of office is for one year, except that the secretary-treasurer shall hold office for three years.

One of the articles of the Constitution, Article XVII, relating to termination of membership, as read, moved a former active member, who is now connected with a rubber company, to inquire as to his status. He wanted to know if he was no longer a member. There did not seem to be any decision covering his case, though it was indicated that the Membership Committee had power to permit active members who discontinue their connection with mills to retain their active membership at its discretion. He was told that he could carry on until notified to the contrary. The text of the article in question, however, does not appear to permit of this interpretation. Article XVII reads:

"Any member who ceases to be in active business, within the meaning of subdivisions A and B of Article III, shall cease to qualify as a member of this corporation, and his membership shall terminate; provided, however, that any member of the corporation who voluntarily retires from active business within the meaning of Article III may continue as an active member until such time as he accepts work other than that defined in said article; provided also, that any active member who through promotion or demotion assumes duties other than that of active superintendent as outlined in Article III, Section A, may be retained as an active member if approved by the Membership Committee."

The duties of committees are defined in the new constitution, there being three corporation committees established, namely, a Membership Committee, a Finance Committee and a Nominating Committee.

One of the articles of the Code relates to divisional meetings. It reads as follows:

Divisional Meetings

In order to promote the greatest interest on the part of members of this

WILLIAM H. BRYDGES
President, American Pulp and Paper Mill Superintendents' Association.

corporation, and to keep the organization active and alive, the divisions shall hold meetings as follows:

Divisions that have ten or more members within a radius of twenty-five miles shall hold monthly meetings.

Divisions that have ten or more members within a radius of fifty miles shall meet every two months.

Divisions that have ten or more members within a radius of one hundred miles shall meet every three months.

Divisions that do not come within the above limitations shall hold meetings semi-annually.

Chairman or secretary-treasurer of each local division shall advise the secretary-treasurer of the corporation of the time and place of each divisional meeting, with complete details regarding same, and as soon as possible prior to the meeting.

Before a vote was taken on the adoption of the revised constitution, or Code of Regulations, as it is also called, Fred C. Boyce got the floor to tell the members some of the steps leading up to the drafting of a new constitution. The utmost care had been taken to protect the association's finances, and individual members are not made liable for the acts of the corporation, it being provided that no member shall be bound by any agreement that might interfere with the performance of his duties as an individual superintendent. The Constitution or Code can be amended or repealed by a two-thirds vote of the members present at a meeting called for the purpose.

Upon being put to a vote, the new Constitution and By-Laws were adopted unanimously.

Officers Elected

Following the report of the Committee on Audit, Charles H. Kephart, chairman, which was adopted, the Committee on Nominations proposed the following names as their choice of officers for the ensuing year: President, William H. Brydges, Bedford Pulp & Paper Co., Big Island, Va.; vice presidents, Herbert T. Randall, Champion Coated Paper Co., Hamilton, Ohio; Killey E. Terry, S. D. Warren Co., Cumberland Mills, Maine; Charles C. Champion, Miller Falls Paper Co., Miller Falls, Mass.; Michael Redmond, Kalamazoo Paper Co., Kalamazoo, Mich., and F. J. Timmerman, Northern Paper Mills, Green Bay, Wis. Secretary-treasurer, Robert L. Eminger, Miamisburg, Ohio.

On motion, the secretary was instructed to cast one affirmative ballot for the election of the officers named, which was done and they were declared elected.

A report was made by Secretary Eminger covering the membership of the association which now numbers 646. He also acknowledged his indebtedness to officers and committees for support in his work, especially to Fred J. Rooney for taking complete charge of arrangements for the meeting.

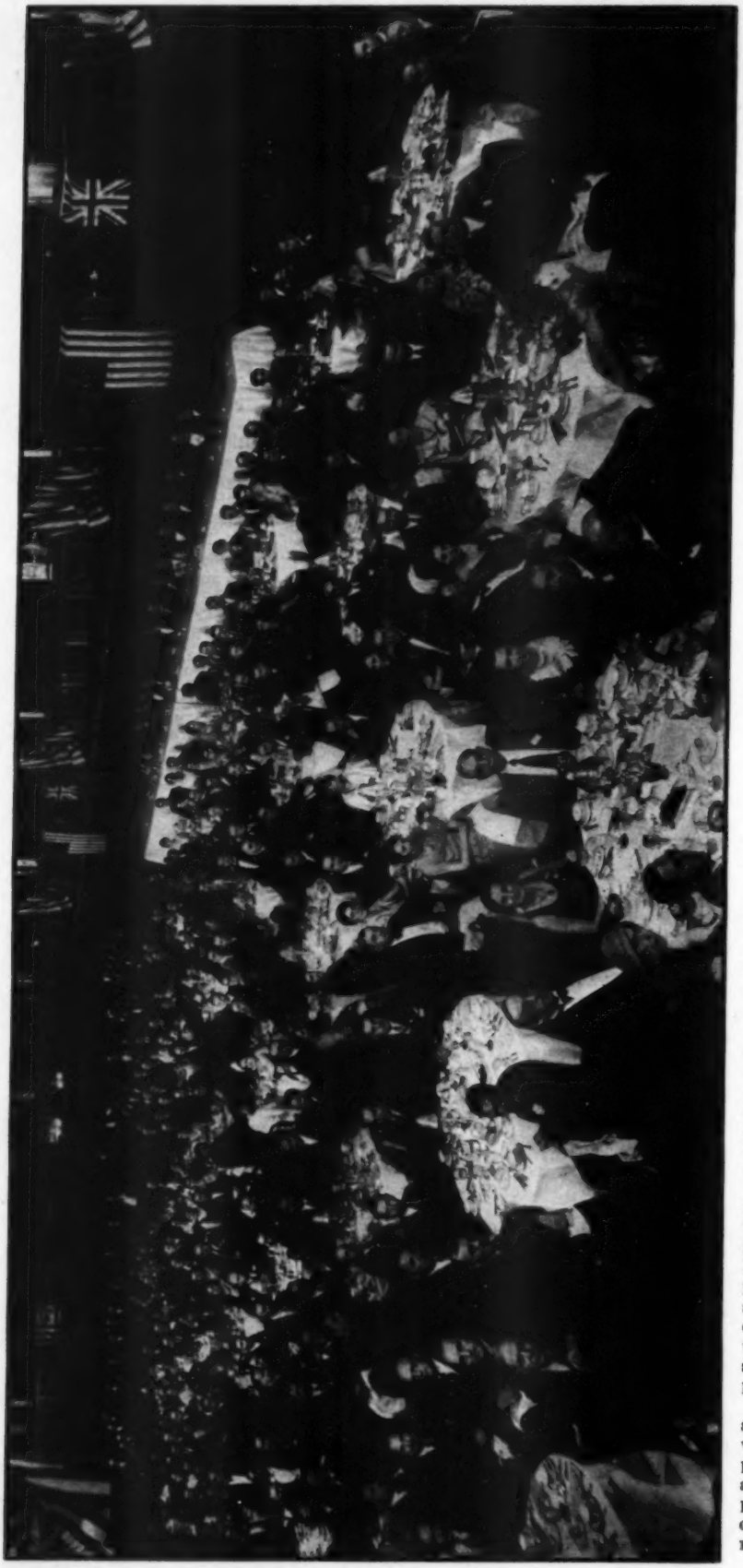
Before adjourning, Retiring President Kelly introduced his successor, William H. Brydges, and bespoke for him the same measure of support that had been accorded to himself during the past year. Mr. Brydges made suitable acknowledgment.

Final Sitting, Saturday Morning

The business before the meeting at the final sitting on Saturday morning, June 4, included the presentation and adoption of the report of the Committee on Resolutions by Tom Harvey, chairman, a paper on "Qualities of West Coast Pulps," by W. N. Kelley and H. R. Heuer, presented by George S. Brazeau, of the Weyerhaeuser Timber Company, Longview, Wash., followed by a Question Box, conducted by President William H. Brydges. The program was added to by a talk on engineering cost accounting by W. J. O'Brien, of the O'Brien Steam Specialty Company, and by John A. Wiener, of the Oswego Board Corporation, who described a new stock valve of his invention.

Resolutions Adopted

The first business taken up was the report of the Committee on Resolutions, which, in addition to expressions of thanks to all who had assisted in making the convention the success it was, took appropriate action pertaining to income tax rates on depreciation and obsolescence which had been brought to the attention of the meeting by Joseph H.



Wallace, of Black-Clawson Company. The text of the resolution covering this, read as follows:

"Resolved that the American Pulp and Paper Mill Superintendents' Association suggests that a committee representing management, cost and technical departments, as well as the association, be appointed to collect information regarding the correct rates for depreciation and obsolescence in this industry."

It was also resolved that the American Pulp and Paper Mill Superintendents' Association "respectfully request the continued co-operation of the paper mill management in the activities of the association."

Characteristics of Pacific Coast Sulphite Pulp

The paper by W. N. Kelley and H. R. Heuer, which was read by George S. Brazeau, following the adoption of the report of the Committee on Resolutions, touched on the beginnings of sulphite pulp manufacture on the Pacific Coast, described the equipment of the new mills which had sprung up within a recent period and gave particulars of the characteristics of the pulp made from western hemlock.

The first sulphite mill on the Pacific Coast was built by W. P. Hawley at West Linn, Ore., in the eighties, bronze digesters being used. It was only of late, however, that western pulps had become a factor in middle western and eastern papermaking and they were now regarded as the equal of any bleached sulphite pulp made.

Western hemlock, which is known to botanists as *Tsuga heterophylla*, and is sometimes called hemlock spruce and Alaska pine, is one of the most abundant woods in the forests of the Pacific northwest, the available stands of this timber in the States of Oregon and Washington alone representing some 900 billion feet, the equivalent of 900 million tons of pulp. When it is considered that the world production of bleached sulphite pulp is 2,000,000 tons a year, the potential wood supply of the two states named would be sufficient to satisfy the world's demand for bleached sulphite for a period of 450 years, the paper said. A continuous yearly logging operation of twelve months is conducted owing to the mildness of the climate in that region.

Describing the characteristics of the fiber of western hemlock, the authors of the paper said that it resembled that of northern black spruce and was of equal length and strength. Being free from pitch there was no trouble from this source on the machine wire. It pulps easily and can be cooked in from ten to twelve hours. Freedom from knots was said to account for a remarkably clean pulp and one easy to bleach.

Details were given of the operation and equipment of the new mills in which equipment and ideas gained from past experiences of European, Canadian and Eastern operations had been incorporated. Mention was made of the use of filtered water throughout one of the new mills. The Chemipulp hot acid sys-

tem was used and all acid was filtered. Mention was also made of double washing in the blowpits and extensive blending systems which blend the pulps of the different digester blows and batch bleaching to make a uniform product. In one 175-ton mill, there was at all times 120 tons of pulp at a consistence of 3½ per cent in the blending tanks.

Other refinements of operation were instanced. The pulp is riffled on felt rifflers and screened through flat screens with .006 to .008 cut plates, both before and after bleaching. Minton vacuum dryers were used for drying the pulp and this was said to result in a sheet of pulp that was more easily beaten than is the case where the pulp is dried over open dryers. Research and control laboratories are maintained by the mills.

In discussing the paper Mr. Kephart made the point that hemlock fibers were not so easy to size as some other plups. The fiber has to be hydrated more thoroughly, but paper made from it gives a good pop test.

Mr. Brazeau admitted that the Coast had to go a long way before a satisfactcry unbleached sulphite could be produced from western hemlock. There was some difficulty in getting unbleached pulp free from shiners.

The Need for Unit Steam Costs

The courtesy of the floor was given to W. J. O'Brien, of the O'Brien Steam Specialty Company, who said he had attended the meeting to hear and discuss a paper on "Uniform Cost Accounting for Paper Mills," by Thomas J. Burke, who was unable to be present.

Mr. O'Brien discussed steam costs, which he said few people knew anything about. If you ask the manager of any mill, with the exception of the St. Regis Paper Company and another big company, how much his steam costs, he will be unable to answer; for the average general manager of a mill never sees a breakdown of steam costs. A definite and accurate record of unit costs must be made in order to know whether to buy or make steam, or both, cost being the final answer. The mills would have to get after their cost accountants to do this job.

"Barking Up the Wrong Tree"

Tom Harvey agreed with everything that Mr. O'Brien said and commended him for the excellence of his talk, but he said he was barking up the wrong tree. The talk should have been made before mill executives and not superintendents. Mr. Harvey said that careful records were kept in some mills and he could take Mr. O'Brien into a mill where the superintendent gets every day a report of the water and steam used, and he knew of one case where the superintendent had effected a saving of 15,000 h.p.—the original consumption was 30,000 h.p. If the mills would do what Mr. O'Brien wanted them to do, it would mean a saving of $25,000,000 to the paper industry of the country.

A New Stock Valve

John A. Wiener gave a description of a stock valve of his invention which was capable of giving a definite uniform flow of stock. It was a valve similar to that used in a stuff box and could be operated with a wooden plug. The valve was made either as an angle valve, a side-outlet valve or a straight valve. It was made in Oswego and could be obtained from any supply house.

Accident Prevention in Paper Mills

John Lundrigan, industrial superintendent of the International Paper Company, gave one of his impressive papers on the prevention of accidents in industrial plants. A great majority of these accidents were the result of someone violating an existing statute of the State or a safety rule of the employer. The control of bad practices on the part of employees should be attended to by the employer through personal discipline of employees. To improve industrial conditions from the standpoint of accident prevention, the usual practice of doing things must be reversed. It must be developed from the top down and applied at the closest point of contact between employer and employee. Plant managers must make accident prevention a fundamental part of their operating creed. Then the men at the real point of contact, the department foremen or gang bosses will translate it into action in their contract with individual employees.

In conclusion, Mr. Lundrigan said that when ownership and management take a common stand in insisting on the prevention of accidents, superintendents and foremen will do their part not only from the standpoint of human failing and interest, but from the realization that it costs the same kind of money to spoil human beings as to damage structures, machines or their product and is therefore a direct cost charge on the operation.

Mr. Lundrigan's paper was read by title, owing to his unavoidable absence.

Queries and Answers

An hour was devoted to Queries and Answers, but the discussion was rather desultory owing to the vague character of some of the questions propounded. Thus one question was "What is the best vat for quick all-sulphite formation?" This could not be answered because the querist failed to designate how many points he wanted run on the machine, that is the bulk of the sheet. The same applied to the next question, "Beating capacity for 50-ton production patent coated or sulphite." The third question was "What is the best location for smoothing rolls," This caused one of the members to exclaim, "Hey, what are they talking about, bond, book, or what?" There was some discussion over this question, Mr. Harvey saying that he put the smoothing rolls about three-quarters way down the dryers and circulated cold water through them. On a book sheet, the best place would be between the last press and the dryers. It seemed to be generally agreed that smoothing rolls should be placed in the center of the dryers.

The great trouble with all smoothing rolls, according to Mr. Harvey, is driving the top roll with a gear. If both rolls are driven no trouble will be experienced from buckling of the sheet. Another member said that driving the top roll through the sheet of paper from the bottom roll was what crushed the paper and caused it to buckle.

Other sample questions were: "What adjustments are necessary to make a very close sheet of book paper?"; "How to stop foam on a multiple cylinder using 90 per cent white water?"; "What is the right freeness and pH of stock to make heavy kraft on a multiple cylinder machine?". There were other queries of this character and not until a query was read asking if a cement bottom could be put in a wooden tub, the wood having become rough, was much interest taken. A number of suggestions were made. The use of copper wire was mentioned and President Brydges said he had laid a 6-inch bottom of cement in a wooden beater by driving nails in the sides of the beater close to the floor. Another member first applied a coating of pitch and covered this with a layer of cement.

Entertainments

The character of the entertainment provided at this meeting was of a high order and greatly appreciated by everyone in attendance. In addition to band concerts there were sightseeing trips and shopping tours for the ladies, besides a luncheon and banquet. At the big banquet on Friday evening the presence of the ladies added a delightful spice to the gathering. The total attendance at the convention was 209, a large proportion of the number consisting of ladies and other visitors.

William MacGregor, of The Carborundum Company, fulfilled the pleasing duties of toastmaster with admirable aplomb. Early in the evening he asked "Gene" Bechard, of the Eastwood Wire Corporation, to come to the speakers' table and present the Eastwood Golf Cup to Herbert T. Randall, winner of the prize, but the cup could not be found until sometime afterward. Two other awards were made, the past president's jewel being presented to Roy H. Kelley by "Jack" O'Connell and the L. D. Post Paper Mill trophy to Fred J. Rooney by Fred C. Boyce. Speeches were made by Retiring-President Kelley, who suggested the formation of a ladies' auxiliary of the association and presented a gift of roses to Mrs. Rooney; and by President Brydges, who spoke of the success of the meeting and said he would do his utmost to maintain the best traditions of the association.

Harmony Between Executives and Superintendents

In more serious vein, William H. Lee, treasurer and general manager of the Lockport Felt Company, discussed the relations between executives and their superintendents. He said the good executive should always regard the superintendent as his key man through whom mill problems should reach him as well as information about conditions pertain-

ing to mill operations. No executive should attempt to direct mill operations except through his mill superintendent. The responsibilities of the executive and the superintendent being equally important there should be a definite policy and working arrangements between them. Addressing himself more directly to the men before him he said that they were there to acquire information through the interchange of ideas and were expected to carry back the results to their executives. He said he had been connected with the papermakers' felt industry for thirty years and for the last two decades as chief executive and during this period he was unable to recall any time when plant superintendents and executives should cooperate in closer unison than now, and for this reason associations like the American Pulp and Paper Mill Superintendents Association met with his hearty endorsement.

Andrew E. Hay, of Pratt & Lambert, Inc., a friend of the toastmaster, was the principal speaker. Preliminary to a rather lengthy discourse on ethics, he told a number of Scotch stories. The Scotch themselves have difficulty in seeing the point of a joke, so it was best to tell it to him when he was young, in order that he would understand it when he grew up. It is understood that most of the Scotch stories which reflect on the parsimony of the Scots are manufactured by a syndicate in Aberdeen which sells them for a profit.

The program closed with an entertainment and dancing, music by the Pratt & Lambert orchestra.

Exhibits at the Convention

It was impossible for those who attended the convention to miss seeing the exhibits of machinery and apparatus. These were arranged along two sides of a passageway leading to the convention hall. A register of visitors at the exhibit of the Dilts Machine Works bore the signatures of more than 200 individuals. The Carborundum Company had, in addition to a display on the convention floor, a massive Aloxite grinder exposed to the view of all who entered the hotel on the main floor. The display upstairs comprised roll grinding wheels, sanding machines for rolls, Aloxite filter blocks, Aloxite cloth and garnet paper.

The Dodge Manufacturing Corporation, of Mishawaka, Ind., had an impressive exhibit featuring the Dodge Hypoid drive and Dodge Timken bearings.

The attraction at the booth of the Dilts Machine Works consisted of a laboratory beater in operation. This beater was lined with glazed tile and a rose-pink tinted pulp was being circulated in it. The roll was driven with improved Tex-Rope drive. A siphon washer attracted a good deal of attention. The cast-iron spiders were equipped with wood inserts for tacking. A model of a bandless roll in sectional view was shown, together with spring tension roll brackets.

The Chromium Corporation of America had an advantageous position at the entrance of the convention hall and made an interesting display of suction box covers, dryers, calender rolls, screen plates of all kinds, as well as table rolls, all coated with chromium to resist the action of acids and alkalies and afford a frictionless surface. A. F. Francis, of the Milwaukee office of the firm, talked at the meeting of the Book and Fine Paper Group on the improvement of equipment by the use of chromium.

Farnsworth Company showed heat reclaiming equipment, feed-water heaters and condenser liquid level control. In the same booth The Bagley & Sewall Company made a display of their new "Paramount" steam joint.

Merritt Engineering & Sales Company showed models of the Meyers-Mesco Regulator, as well as the Meyers-Mesco Automatic Feeder, a paper on which was read before the convention by S. E. Meyers.

L. Wimmer, Muskegon, Mich., was a newcomer at paper conventions. He made an exhibit of equipment for relieving gases from a sulphite digester. This is known as the Wimmer meter valve and it is said to be in use in several mills. By the turn of a screw or plug three different sizes of outlet may be provided, in addition to the shut-off position.

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◆ Evaluation of Wood Pulp for Strength

In a lecture delivered to the Liverpool Section of the Society of Chemical Industry on March 16, Dr. H. Ainsworth Harrison discussed "The Evaluation of Wood Pulp for Strength," and demonstrated the standard apparatus adopted by the Paper Makers' Association of Great Britain and Ireland. The following account of the lecture is taken from the Journal of the Society of Chemical Industry.

It is now about sixty years since wood pulp was first manufactured, but only during the past ten years or so have serious attempts been made to establish standard conditions for assessing its strength qualities on a quantitative basis. Success in this work was not possible until it was realized that a large number of variables appreciably affected the test results, and that each and every one of them must be carefully investigated and if necessary controlled. In spite of the fact that Great Britain imports some 1,500,000 tons of wood pulp per annum, valued at about £10,000,000 ($50,000,000), and investigation of the possibilities of arriving at a standard method of evaluation has hitherto been left almost entirely to the pulp-producing countries, especially Scandinavia and North America, and owing to a variety of circumstances, little progress toward standardization has been made until very recently. At the beginning of 1928 the Technical Section of the Paper Makers' Association of Great Britain and Ireland formed a Pulp Evaluation Committee to review the position, and after about a year's work an interim report was published indicating that a satisfactory method of determining the "unbeaten" strength (i. e., after disintegration only) had been achieved. This method met with general approval, and was at once adopted by the Paper Makers' Association as the British Standard method. It has since found favor in almost every papermaking country throughout the world. Sets of the apparatus are in use in Norway, Sweden, Finland, Esthonia, France, Belgium, India, Australia, U. S. A., and Canada. Indeed, the next few weeks will probably show its adoption as a tentative standard method throughout North America.

The unbeaten test, however, is only of primary importance to newsprint mills and other mills where pulp is not appreciably hydrated before its conversion into paper. For all other mills a "beaten" test (i. e., a series of evaluations at different stages of hydration) is very necessary. The great difficulty here is to design a laboratory beater which will subject the pulp to the same treatment as the mill beaters. Some few details of the "beaten" test evolved by the lecturer and a demonstration of the apparatus were given. Graphs showing the varying effects of the beating process on strength and wetness and slides illustrating wood pulp fibers at different stages of beating were shown.

The four factors which may be considered as primarily influencing paper formation, hydration, and strength are felting, fibrillation, surface cohesion, and individual fiber strength. There are, of course, no definite lines of demarcation. Felting capacity, for instance, is intimately bound up with fibrillation and surface cohesion, inasmuch as it is dependent on fiber length, length-breadth ratio, pliability, and nature of the surface. Felting, however, is a means to an end, not the end itself. When pulp has been beaten sufficiently to prevent slippage of the fibers, the individual fiber strength becomes even more important than fiber-to-fiber bondage.

The hydration of wood pulp is enormously facilitated by increase in specific external surface as brought about by fibrillation, and there appears to have arisen a general impression that fibrillation produces strength, the reason doubtless being that strength and imbibition usually occur together. In the lecturer's view, however, the fibrillation produced by large-scale beaters in the early stages of beating is for the most part accidental, and has little relation to strength. Certainly air-dry pulp beaten in a laboratory ball mill increases very rapidly in strength during the first minutes' beating, long before any fibrillation is observable under the microscope. We are, then, left with the possibility of cohesion brought about by the colloidal nature of the fiber surface. The physical phenomena involved are highly complex and as yet little understood, but undoubtedly at a very early stage include swelling by absorption. All the experimental evidence can be explained without recourse to the idea that fibrillation favorably affects felting capacity, and so the strength of wood pulp papers.

POWER

GENERATION + UTILIZATION + MAINTENANCE

This section turns the searchlight on power and its allied problems, showing big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

By W. S. JOULE

◆ Proper Methods of Installing Steam Flow Meters

Because of the need for proper distribution of costs for steam to various departments of a paper mill, flow meters are extremely useful instruments. To give the best results, they must be properly installed, inspected and calibrated and kept in good working order, like any other mechanism.

To install them properly, it may sometimes be necessary to alter piping arrangements somewhat. Eddies may be produced in the steam flow by elbows, valves and other fittings. For this reason, it is recommended that ahead of the differential pressure producing device of a flow meter, there should be a straight run of pipe at least six pipe diameters long and following it a straight run at least three diameters long. Of course, these facts are usually considered when designing a piping system for a new plant and proper provisions are made for installing meters at that time but when changes are being made in an existing plant, the problem is not so simple.

Variations in ratio of flow do not affect materially the accuracy of the flow meter, since it is designed to measure and record them. It sometimes happens, however, that steam flow to reciprocating units is to be measured and while there are devices available to account for the rapid fluctuations of flow from maximum almost to zero, which may occur, this factor introduces a difficult problem in meter design. For measuring flow of liquids in which the temperature varies widely, meters have been developed that take account of these temperature fluctuations, which cause a change in the density of the liquid.

Measuring for steam going to processes, where the amount of steam used is regulated by a valve, the meter is usually connected on the high-pressure side of the valve, that is, the side toward the boiler. If the meter is connected on the low-pressure side of the valve, a source of inaccuracy may be introduced as this low pressure will vary and there might even be times during which there might be a vacuum on the body of the meter.

◆ CONSTANTLY increasing temperature and pressures to meet the demand for lower cost power have stimulated the research work for the production of high-strength, heat-resisting boiler steels.

◆ Taking Motor Temperatures

Every engineer knows that the manufacturers of electric motors have taken great pains during the past 15 or 20 years to build motors that will operate economically even under the most unfavorable conditions. One of these unfavorable conditions is that of operation where the air is hot around the machine that the motor is driving or around the motor itself. Practically all motors are designed for best operation at a certain temperature and the calculations made by the motor designers take into account the heat resistance of the required insulation. Furthermore, each motor is rated according to the temperature rise that can be permitted in the motor coils without risking damage to the insulation. As all engineers know, this temperature rating is always given on the name plate of the motor. Thus, a 50-degree motor is one in which the temperature of the hottest part of the motor while it is in operation should not be more than 50 degrees C. above the temperature of the still air surrounding the machine.

Rated motor temperatures are always given in degrees centigrade but these can be converted easily into degrees Fahrenheit by the formula that every engineer will remember:

$$\text{Deg. } F = (9/5 \times \text{deg. } C) + 32$$

which is merely the formula expressing the relative values of the fahrenheit and centigrade degrees.

In the case of the 50-degree motor, moreover, the temperature of the hottest part must never be allowed to go above 90 deg. C. because 40 deg. C. or 104 deg. Fahr. is taken as the highest air temperature that can be permitted in calculating the performance of the motor insulation.

Thus it can be seen that, to get the best out of motors, they should never be asked to perform under conditions that they were not designed for and that impose too much of a handicap on them. Most motor applications, of course, fall within the ranges of temperature assumed by the designers. Occasionally, however, a motor must be run in unusual locations and, in many cases, specially built motors must be used, or ventilating fans must be provided to keep them cool.

An interesting instance of the latter was seen recently in connection with a forced draft fan in a small single-boiler plant. Because of space limitations, the fan had to be installed just over the front of the boiler setting where the air was hot. To cool the fan motor, a small motor-driven blower was installed beside a nearby window to force fresh air through a duct to the fan motor, which was of the totally enclosed type, and with this little assistance operated cool and continuously.

This little instance shows how a little ingenuity will often solve such problems. The point is that if the engineer has any reason to suspect that any of his motors are operating too hot and that there is any danger of their getting too close to the temperature at which the insulation will be affected, he will do well to take a few temperature readings. The small amount of trouble may obviate a shut-down of an important motor at just the most inconvenient time.

It is not at all difficult to get these temperatures with a few thermometers, provided they are properly placed. Their location, of course, will depend largely upon the construction of the motor and the machine it is driving. It is necessary to take temperatures of the motor parts and of the surrounding air.

If the machine requires considerable floor space, the temperature of the surrounding air should be taken at four separate points, nearby, but still far enough away to be unaffected by these room temperatures. Two thermometers are commonly used, one in air and one in a special oil cup.

To eliminate possibility of errors or inaccuracies caused by currents of air from nearby pulleys or belts, a canvas screen may be used to screen off the machine under test or if possible and convenient, adjacent machines may be shut down.

On the motors, thermometers should be placed on all parts that are important and accessible, such as shunt and series windings, pole tips, frame and in the air space between the pole tips. Each thermometer bulb should be in close contact with the part whose temperature it is to measure. It may be attached by tape or by a wad of putty. For small motors, one or two thermometers in contact with field coils or frame will usually be sufficient. The hottest points can usually be located by trial.

◆ THE EARLY SUMMER months afford an excellent time to check over the heating plant. Now, while the past season's difficulties are fresh in mind, is the time to list each defect in the system—each source of trouble—and lay out a definite weekly schedule for taking care of these during the summer months. To follow this plan religiously will mean that next year's heating season will arrive without the necessity of a mad, last-minute rush, with the sacrifice and expense which rush work always entails.

◆ A New Steel Flooring

The development of a new steel flooring after long scientific investigation has been announced by Mellon Institute of Industrial Research, Pittsburgh, Pa. This flooring consists of slabs, 24 inches wide and up to 12 feet 5 inches in length at present, that are fabricated by preforming two steel sheets and subsequently welding them together in the plane above the neutral axis. A cross-section taken through the width of a completed unit shows four keystone-shaped cells, all connected together near the neutral axis. These four ducts, which constitute each unit, are spaced at six-inch intervals and connect directly, when installed, with the corresponding ducts of the adjacent section of floor slab. This arrangement is described as enabling the utilization of the new floor not only as an efficient load-carrying member, but also as a multiple floor-duct system for handling all types of electrical lines. Such a grouping of parallel cells with six-inch spacing is claimed to permit, at any time, the installation of electrical outlets within a radius of three inches from the exact location required, thus providing permanent electrical flexibility and precluding electrical obsolescence.

It is said that the keystone slab can be installed with ease and rapidity; that it can be bolted, clipped, or welded into place across the structural members, affording a working floor for the various trades. This floor is fire-safe; it is adaptable to appropriate finishes and to suspended ceilings and service piping, and has a low weight per square foot.

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◆ Fade-Ometer Substantially Improved

A new and substantially improved Fade-Ometer has been brought out by Atlas Electric Devices Co., Chicago, Ill. This testing machine, with improved control of voltage, temperature and humidity, is designed to meet the testing requirements attending the present high standards of color fastness.

For fourteen years, Fade-Ometers have been used to predetermine the light fastness of colors and colored materials, including textiles, dyestuffs, paper, printing and lithographic inks, and wall paper.

An artificial sun is reproduced in the Fade-Ometer by a violet carbon arc light. The specimens to be tested are exposed in holders arranged in a circle around the light. Ventilation is maintained and temperature kept within limits by an electric fan. Humidity is furnished by a water reservoir placed below the specimen chamber. These and other essential characteristics of previous models are retained in the new instrument. This type embodies a number of refinements designed to provide greater precision and more complete control of all factors attending testing the light fastness of colors.

An aluminum shell, hinged at six points, encloses the specimens which are placed in metal holders. These holders are suspended from a 20-inch ring, surrounding the arc. This arrangement precludes the possibility of the specimens overheating by contact of the holders with other metal.

The water reservoir of polished copper, 29 inches in diameter, forms the base of the machine and serves as a humidifier. A series of wire frames in the reservoir are covered with cotton wicking. These frames rest in four inches of water and provide 1600 square inches of saturated wicking, through which all air coming in contact with the specimens is driven by an electric fan, placed below the reservoir. A relative humidity of 52 per cent to 60 per cent is produced.

The fan is controlled by a DeKhotinsky thermo regulator, making it possible to

maintain the temperature by automatically starting and stopping the fan between 98 and 105 deg. Fahr. Where higher temperatures are desired, they can readily be attained by resetting the thermostat.

A voltmeter is provided for reading the arc and line voltage and an ammeter for ascertaining that the proper amount of current is consumed. The rotary main line switch and two four point adjusting switches make it possible to control the arc to a very fine degree. A small circuit breaker is provided which will automatically trip, should the current rise above 20 amperes and remain thus for 15 minutes or longer.

The Type FDA Fade-Ometer is made in one size only, capacity 42 specimens, and will replace all previous types, production of which has been discontinued.

◆ New Catalogues and Publications

American Air Filter Co., Inc., Louisville, Ky.—This company has sent out an interesting catalogue on American air filters in industry, in which the science of dust engineering is comprehensively treated. Filtered air has come to be recognized as essential in many industries, including the paper industry. The subject of air cleaning and conditioning is covered in an interesting, non-technical manner and the book contains a large number of illustrations. Some well known paper mills are listed as users of the American equipment.

American Cable Co., Inc., 230 Park Ave., New York—In this booklet, the manufacturer gives twelve reasons why you can save money with TRU-LAY Preformed Wire Rope. Each point is well covered and illustrated. Copies on request.

Farrel-Birmingham Co., Buffalo, N. Y.—Bulletin No. 425 is descriptive of Farrel-Sykes High Speed Gear Units, a new series especially adapted for connecting Diesel or gas engines to centrifugal pumps. This unit is designed to operate at speeds ranging from 1200 r.p.m. to 3600 r.p.m. The booklet contains informative data, dimension sheets and tables giving horsepower rating. The text is well illustrated.

Lawrence Pump & Engine Co., Lawrence, Mass.—Lawrence Vortex type "H. L." Centrifugal Pump is the subject of the company's latest bulletin No. D-18. This pump has been designed and built to provide a line of reliable units suitable for motor speeds up to 3600 r.p.m. This pump is built in sizes from 2 in. to 10 in. inclusive and for capacities from 50 to 4000 g.p.m. and for head conditions up to 300 ft. Illustrations and detailed specifications are given in the bulletin as well as tables of dimensions.

BOOK REVIEWS

Paper Testing and Paper Chemistry for Printers—The author of this book, Gordon A. Jahans, once worked as a papermaker. During later years of study, criticism of paper by the printer and the need for closer co-operation between the papermaker and printer took on new significance. The author endeavored to do some research work on this subject and found reference works inadequate and impractical. His recently published book supplies that need. The material has been gathered from authentic sources and every effort made to prepare the text in as simple and understandable style as possible.

In Chapter I the history of papermaking is briefly related with a condensed summary of the various raw materials and processes. Chapter II takes up the classification of papers according to uses. In this chapter, it is brought out that the printer's first consideration in buying paper should be the use for which it is intended. The paper should then be submitted to various tests to ascertain whether or not it meets the specifications. These tests are outlined in several chapters; explicit directions are given for making general tests without apparatus, as well as physical and chemical tests with the various devices used for such purposes.

A valuable section of the book is a chapter on the microscopic examination of fibers, with elementary principles for using the microscope. The chapters on Qualitative Analysis and Quantitative Analysis contain a number of tables, by the use of which the quality, and amounts of substances used in the manufacture of paper may be easily determined. Chemical tests for the identification of coatings and detection of impurities may also be made by following the directions and tables shown. This book would unquestionably be a valuable addition to the library of both printer and papermaker. It is published by Isaac Pitman & Sons, 2 West 45th Street, New York City. Price, $3.75.

The MONTH at WASHINGTON

UNETHICAL Practices in Industry—Competitive problems facing many large and small business enterprises are being reflected in increased efforts to stamp out unfair and unethical trade practices, and also in a greater willingness among the members of industry to promote harmony within their ranks, says Wm. E. Humphrey, chairman of the Federal Trade Commission. As the struggle for business becomes keener, there is a distinct tendency on the part of trade to call upon the Commission to exercise corrective action, not only to protect itself against false representation by competitors, who in some cases may use extraordinary means to sell goods, but to act as the medium for the development of self-regulation under public supervision, he says. The problems involved in the conditions through which the country is now passing are being translated into various demands upon the Commission. The practices of a manufacturer or distributor, ignored by the trade a few years ago, are now the subject of close vigilance for their effect on an entire industry.

Tariff Commission Reports—The relation of duties to the value of imports is the subject of a report by the U. S. Tariff Commission, comparing the average equivalent ad valorem of rates of duty on imports during 1929, under the act of 1922, and during the year ending Sept. 30, 1931, under the act of 1930. In this report, the commission shows a comparison for the years 1929 and 1930-31 of the imports, rates of duty, duties collected and equivalent ad valorems for all of the items dutiable under either or both of the tariff acts of 1922 and 1930, including paper and pulp.

Allocation of Sales Effort—As an aid in planning the approach to that portion of the industrial market, found in manufacturing plants, the Department of Commerce has released "A Basis for Establishing Industrial Sales Territories" (Domestic Commerce Series No. 60), the result of a study undertaken at the urgent request of numerous trade organizations. It presents statistics and maps covering 75 per cent of the total domestic activity in each of seven universally adaptable marketing indexes. The statistics and maps present the geographic concentration of manufacturing establishments and disclose additional facts regarding such establishments. This material enables any manufacturer to adjust and check his present plan of allocating sales effort.

National Directory of Commodity Specifications—A new edition of the National Directory of Commodity Specifications has just been issued by the Bureau of Standards (Mis. Pub. No. 130), the first issue of which was put out in 1925. It contains an alphabetical list of commodities and a thoroughly classified list of the specifications formulated by organizations having national recognition or agencies speaking with the authority of the Federal Government as a whole.

The 1932 Standards Yearbook, also published by the Bureau, shows important worldwide developments in standardization, with considerable detail being given to standardization work in the United States. Subjects covered range from accident prevention to zoning systems, and include references to important work having a direct bearing on reducing the cost to the public and increasing the profit of manufacturers on a wide range of articles.

Depreciated Exchange—The Government printing office has just released Senate Document No. 90, "Depreciated Exchange Statistics of Imports Into the United States," showing the imports of 226 commodities, average monthly rates of exchange of principal countries whose exchange has depreciated since July 1, 1931, comparison of imports from countries with and without depreciation, value of total imports by months, quantity and value.

Interstate Commerce Rulings—In National Paper Box Co. vs. Chicago, Rock Island and Pacific Rwy., No. 23973, the Interstate Commerce Commission has just ruled that cores or tubes, made of chip board and waste paper, in boxes, in less than carloads, from Kansas City, Mo. to Monticello, Ind., were subject to ratings of one and one-half times first class, under western and official classifications, and that the applicable ratings and rates were not unreasonable, dismissing the complaint. The complainant contended the rates were unreasonable and inapplicable, and the railroad company sued to collect alleged undercharges on shipments. Lawful rates and ratings for the future, and waiver of collection of undercharges were sought.

In Simplex Paper Corp. vs. Cleveland, Cincinnati, Chicago & St. Louis Rwy., No. 24186, the commission held that rates charged on discarded offset tympan paper, in rolls, in carloads, from Philadelphia and Springfield, Ohio, to Adrian, Mich., were applicable and not unreasonable, and dismissed the complaint. The complainant contended the rates were inapplicable and unreasonable, and lawful rates for the future, with reparation, were sought.

In Indiana Fibre Products Co. vs. Virginian Rwy., No. 24416, the commission found that rates on imported wood pulp, in carloads, from Norfolk, Va., to Marion, Ind., were not unreasonable or unduly prejudicial, and the complaint was dismissed. The complainant contended the rates were unreasonable and unduly prejudicial, and asked for a reasonable rate and for reparation.

Canadian Rates—American shippers using Canadian carriers are advised to be thoroughly familiar with Canadian rates, says the Department of Commerce, in view of the recent decision of the Circuit Court of Montreal, obligating shippers to pay the rate established by law even though it may be inadvertently misquoted by the carrier.

Paper Notes of Interest—Widespread economies in the paper and publishing industries, envisaging standardization, among other things of letter heads, office forms, catalogue pages, trade and news papers, and punchings for loose leaves, were discussed as offering opportunities for standardization, at a recent meeting of the paper industry's simplification committee, held in the Bureau of Standards which acts as a coordinating agency. Among the groups represented were the American Paper and Pulp Association, National Paper Trade Association, National Publishers' Association, etc. R. C. Fay of the American Writing Paper Company (Holyoke, Mass.), was elected chairman of the reorganized committee. The consensus of opinion of those present was that the 35x45½-inch size listed for use in general printing and publishing should be changed to 35x45. Coming up for standardization is cover paper and index bristol; four sizes of the former being mentioned, viz: 20x26", 26x40", 23x33" and 23x35"; with three sizes of index bristol suggested as adequate for normal requirements, viz: 20½x24¾", 22½x28½" and 25½x30½".

A number of unfair methods of competition, including the selling of goods below cost for the purpose of injuring competition and creating a monopoly, are described and condemned by the way paper industry, through its adoption of a set of trade practice rules which have been revised finally by the Federal Trade Commission.

Money depreciation is viewed as affecting the prices of wood pulp, with a downward trend during the last three years, is a recent analysis of the Tariff Commission's report to Congress. The downward trend has been somewhat more marked perhaps since the depreciation of the currency in European pulp producing countries than before, says the Commission. The report is in compliance with a resolution (S. Res. No. 95) directing the Commission to investigate the effect of the depreciation in value of foreign currencies on the importation of these commodities.

The New Revenue Bill—A tax bill to yield a billion and a quarter has just been signed by the President. The bill imposes additional taxes on incomes through higher income tax rates, both normal and surtax, the normal tax being 4 per cent on the first $4,000 and 8 per cent from $4,000 to $6,000 net income. Surtaxes begin at $6,000 and range upward to 55 per cent on incomes in excess of a million. Individual ex-

emptions are reduced from $1,500 to $1,000 for single persons and from $3,500 to $2,500 for a married person, with credit for dependents remaining as at present. The corporation rate of income tax was advanced from 12 per cent to 14 per cent with all existing exemptions for small corporations eliminated. There is an increase in postage from 2 to 3c; a gasoline tax of 1c per gallon on all manufacturers production; stamp taxes on bank checks, stock and bond transfers and conveyances; percentage taxes on safe deposit boxes; 3 per cent tax on passenger automobiles; 2 per cent on trucks; 2 per cent on parts and accessories; 2½ per cent per pound on tires, 4c per pound on tubes; 5 per cent tax on telegraph messages and a sliding scale on telephone conversations, with a 50c exemption; 10c on cable and radio messages; the postal rate increase is effective only as of July 1, 1933.

NEW YORK CITY

◆ WILLIAM S. HOFSTRA, American director for Price & Pierce, Ltd., wood pulp and timber dealers of London, Eng., and for Price Brothers, of Quebec, Can., and long prominent in the pulp trade, died at his home in Hempstead, Long Island, on May 11 after a two months' illness, at the age of 71. Born in Holland, Mich., of Dutch immigrant parents, Mr. Hofstra's first knowledge of lumber was acquired in the timber lands of Michigan. He organized the Nassau Lumber Company of New York, and served as timber expert for the Diamond Match Company. A widow survives.

◆ A. J. PAGEL, president of Pagel, Horton & Co., Inc., wood pulp agents and importers of 347 Madison avenue, New York, has been re-elected a vice president of the Swedish Chamber of Commerce of the U. S. A.

◆ ARTHUR J. ERICSSON, long with the Union Bag and Paper Corporation, and of recent years sales head of the Crepe-Kraft Company, of Newark, N. J., is now with the St. Regis Paper Company, having joined that organization on May 1. With the St. Regis, Mr. Ericsson will develop and market a line of specialty papers for the trade. The Harrisville Mill of the company, formerly the property of the Diana Paper Company, is especially adapted for color lines of substantially groundwood content—writing manilas, oiled packing manilas, cheviot cover papers and similar lines. Mr. Ericsson was in charge of the specialty sales division of Union Bag, and afterward served as sales manager of the Scutan Division and chairman of the Product Engineering Committee.

◆ THE MacANDREWS & Forbes Company, paperboard manufacturer, with headquarters in New York City, reports for the first quarter of 1932 net profit after expenses, Federal taxes and the company's proportion of results of operation of subsidiaries of $139,895, equivalent, after 6 per cent preferred dividend requirements, to 33 cents a share on 326,543 no par common shares, compared with $217,826 or 5 cents a share on 335,700 common shares in the same period last year.

◆ THE RESOLUTE PAPER Products Corporation announces the removal of its offices to 1450 Broadway, corner of Forty-first street, New York, where the new telephone number is Chickering 4-5405.

◆ WILLIAM STECK & CO., Inc., dealers in and importers of papermakers' supplies, have moved from 15 Park Row to 38 Park Row, New York, where they have conveniently situated offices overlooking City Hall Park.

◆ THE CERTAIN-TEED PRODUCTS Corporation, manufacturer of roofing paper, and subsidiaries, report for the quarter ended March 31, 1932, net loss after depreciation, depletion, interest, taxes and other charges, of $511,936, compared with a loss of $233,892 last year. George M. Brown, president, reports the company "free from borrowed money and with large cash balances."

◆ OSWALD F. DOLGE has disposed of his interest in and has retired as an officer and director of Green, Low & Dolge, Inc., paper merchants of New York, with a branch in Hartford, Conn. A. W. Green continues as president and treasurer of the firm, and Fred G. Low is vice president and secretary.

◆ THE LINDE Air Products Co., New York City, recently announced substantial reductions in the prices of Oxweld Welding and Cutting Blowpipes.

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◆ J. H. Horne & Sons Reorganized

The recent passing of H. Franklin Horne, who was president and majority stockholder of J. H. Horne & Sons Co., Lawrence, Mass., necessitated reorganization of the company which has been effected, with the election of new officers and directors:

Byron R. Cleveland, the new president, is grandson of the late Byron F. Horne, one of the original founders of the company, and a nephew of the late John E. Horne. He has been associated with the company for eleven years. J. N. Davis, who has been with the company for more than twenty years, is vice-president and resident manager. Walter Abbe, the new treasurer, is president of the Smith & Winchester Mfg. Co., South Windham, Conn. Mr. Cleveland is also associated with this company.

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◆ GEORGE W. PAGE, vice president and a director of the W. A. Jones Foundry and Machine Company, Chicago, died at his home on May 29th. Mr. Page had been with the company for 33 years, beginning his career as a shipping clerk in 1899. He was 51 years old.

◆ B. & W. Co. to Make and Sell K-C Sulphite Cooking System

The Babcock & Wilcox Co. has been granted the exclusive rights in the United States and Canada for the manufacture and sale of the automatic pressure circulating and indirect heating system of sulphite cooking developed by the Kimberly-Clark Corporation.

This process, which is patented, is being successfully used in six digesters in the Kimberly Mill, Kimberly, Wis.

The manufacture of equipment for this process conforms with the policy of The Babcock & Wilcox Co. of building special process equipment such as welded pressure parts and corrosion-resisting alloy equipment, which comprise the important and vital parts of the Kimberly-Clark system.

All alloy material used will be produced under the supervision of metallurgists of The Babcock & Wilcox Co., and will be of an analysis successfully developed for sulphite service.

Fabricated parts will be made in the Barberton Works where a modern foundry, completely equipped with high-frequency induction melting-furnaces, is operated exclusively for alloy material; and where all other necessary facilities are available for fabricating alloy steels under the closest supervision.

◆ Explosion in Paper Mill Kills Six

The town of Franklin, Ohio, was visited by disaster May 12, when an explosion wrecked the plant of the Cheney Pulp and Paper Company, killing six men and injuring several.

The two-story brick building was reduced to ruins, and adjoining buildings were shaken. Excess steam pressure in a rag cooker was thought to be the cause of the explosion, although it was equipped with a safety valve and had recently been inspected. An investigation is being made of all other possible contributing causes.

The monetary loss was estimated at $125,000, by Howard Cheney, president of the company.

◆ Mathematical Consulting Service

D. S. Davis, formerly staff mathematician for the Mead Corporation, Chillicothe, Ohio, is offering a consulting service in industrial mathematics.

The new company, known as Dale S. Davis' Associates and located in East Northfield, Mass., is specializing in the preparation of alignment charts and empirical equations for the paper industry.

◆ J. R. BROWN has been appointed sales representative for the Farrel-Birmingham Co., Inc., Ansonia, Conn., to handle the sale of the company's equipment in the middle west territory. His headquarters are located at 2710 First Central Trust building, Akron, Ohio.

◆ F. J. ROONEY, well known in the paper industry, has resigned as works manager of the Upson Co., Lockport, N. Y.

+ CANADIAN NEWS +

◆ Technical Section to Visit Niagara Peninsula

The Technical Section of the Canadian Pulp and Paper Association will hold its Summer meeting on June 22nd, 23rd and 24th, and will make its headquarters during those three days at the Welland House, St. Catherines, Ont. A most interesting and instructive program has been prepared. Papers will be presented by W. H. Swanson of the Kimberly-Clark Co. on "Circulating Systems," and by John Park of the *Chicago Tribune* on "Color Press Printing on Newsprint." Arrangements have been made for visits to Alliance Paper Mills, Merritton; Interlake Tissue Mills, St. Catherines; Provincial Paper Mills, Georgetown; Canadian Vegetable Parchment; Beaver Wood Fibre Co., Thorold; Welland Ship Canal; Ontario Paper Co., Thorold; Niagara Wire Works, Niagara Falls, Ont.; Queenston Power House, Queenston, Ont.; and the International Paper mills at Niagara Falls, N. Y., and at Tonawanda, N. Y.

The competition for the McInnis Trophy will be held at the end of the afternoon of June 23rd on the links of the Look Out Point Country Club. The Weldon Medal for the best paper submitted to the annual meeting last January will be presented to the winner at the luncheon on the 23rd.

◆ THE NEW TRADE agreement between Canada and New Zealand, which was assented to by the parliaments of both countries last month, gives Canada the benefit of the British preferential tariff on a wide variety of pulp and paper products, comprising the following: wrapping papers, unspecified paper (including printing and newsprint), cardboard, pasteboard, wood pulp board, corrugated board, fiberboard, strawboard, paper hangings, account books, invoice forms and various other kinds of stationery. Concessions are also granted on laths, shingles and timber. Every rate is increased by a surtax of 22½ per cent on duty. Paper pulp for the manufacture of paper, certain kinds of paper for orchardists, etc., remain on the free list.

◆ Newsprint Statistics

Production of newsprint by Canadian mills during the month of April amounted to 176,660 tons, compared with 166,758 tons in March, a gain of 6 per cent. A favorable feature of the month's operations was the excess of shipments over production. Shipments in April totaled 186,443 tons, the excess over production being 9,783 tons.

Exports of newsprint from Canadian mills during April were valued at $6,710,062, which compares with $8,143,167 in March of this year and with $8,329,722 in April of last year. Total exports of pulp and paper for April were valued at $8,196,296, against $10,769,282 in March and $10,771,452 in April of last year. For the first four months of the current year, exports of pulp and paper from the Dominion had a value of $38,691,221, as contrasted with $48,003,225 in the corresponding period of last year.

◆ Wood Pulp Demand Growing in Japan

The demand of the rayon industry in Japan for wood pulp is increasing largely, and has given impetus to Japanese wood pulp manufacture. Consumption of wood pulp by Japanese rayon manufacturers has doubled in recent years, and last year stood at slightly more than 32,000 tons.

This field should be a promising one for Canadian wood pulp manufacturers who, however, may have to contend with the handicap of an increased duty in the near future. The tariff ranges from 22 to 27 yen (11 to 13½ cents) per hundredweight, and it is expected that this will be increased to between 30 and 40 per cent. Some idea of the comparative prosperity of the Japanese rayon manufacturers is gained from the fact that among the many industries in that country their mills are practically alone working at or near full capacity.

◆ Pyrites to Replace Sulphur

One of the most important of technical developments in Canadian mining and pulp and paper manufacturing fields of the past few years will become a practical reality in the near future when, for the first time, a number of large pulp and paper mills in Eastern Canada will be using Canadian pyrites to manufacture sulphite cooking liquor by the process evolved by Horace Freeman, president of the Sulphite Research Corp. of Canada. The equipment is at present in operation in the plant of the St. Lawrence Paper, Ltd., Three-Rivers, and other large mills throughout Eastern Canada are expected to follow suit shortly.

Imports of American sulphur into Canada are stated to amount to about $4,000,000 annually; and by the new process, pyrites, available in various parts of Canada conveniently located relatively to sulphite mills, will not only replace the imported sulphur, but will at the same time give impetus to the mining industry in Canada and will enable the mills to effect an appreciable saving.

QUEBEC

◆ Price Bros.' Surplus Practically Absorbed

The financial statement of Price Bros. & Co. for the fiscal year ended February 29, 1932, covers what has been for that company, in common with other concerns in the newsprint industry, the most difficult year in its history. Earnings show a sharp reduction, as does working capital, which now stands at $1,267,223. Due to the sharp decline in earnings, payment of the various charges, including interest, depreciation, depletion, revaluation of inventories and dividends, reduced the company's earned surplus from $2,802,419, as of February 28, 1931, to $175,254 at the close of the past fiscal year. Operating profits of $401,392, compared with $3,308,954 the preceding year. Bond interest absorbed $679,885, and depreciation $787,674, making a net operating loss of $1,066,167, against a profit of $1,362,229 a year previously. Payment of preferred dividends at $419,393, and common dividends totalling $533,540, made a deficit on the year of $2,019,100. Inventory adjustment was $608,066, increasing the deficit to $2,627,166, and reducing the balance carried forward from $2,802,420 to $175,254.

The balance sheet and auditors' report refer to certain advances made by the company to a shareholder, without the knowledge of certain directors of the company, who protested against them as soon as they became aware of them and notified the company that they in nowise assented thereto. According to the auditors' report, these advances were made to the Quebec Investment Co., Ltd., which holds a large block of Price Bros.' stock, and totaled $1,438,000, of which $1,273,500 and accrued interest remained due as at February 29th last. On May 20th, these advances remained unpaid and unsecured.

After nineteen years in the service of Price Bros., H. Munro has resigned as district manager of mills in the Lake St. John area. He was electrical superintendent at Riverbend, then manager of the mill and town till 1929.

◆ $2,000,000 Fire Delays Reopening of Mill

The worst fire in the history of the Canadian pulp and paper industry broke out at the end of April in the 250,000-cord wood pile of the Port Alfred Division of Consolidated Paper Corp., and raged for ten days before it was finally brought under control. All available men in the district were taken on to fight the conflagration and equipment was sent from as far away as Quebec City. The intense heat aroused fears for the safety of the mill and neighboring town; the houses had to be sprinkled continuously, a wall was built to protect the side of the mill facing the wood pile, and the conveyor for bringing wood from the pile to the wood room was hacked down to prevent the flames from spreading along it. The fire was finally subdued with the aid of powerful pumps on the dredge General Montcalm, owned by the General Dredging Co.

Of the 250,000 cords of pulp wood, insured for the sum of $3,000,000, only

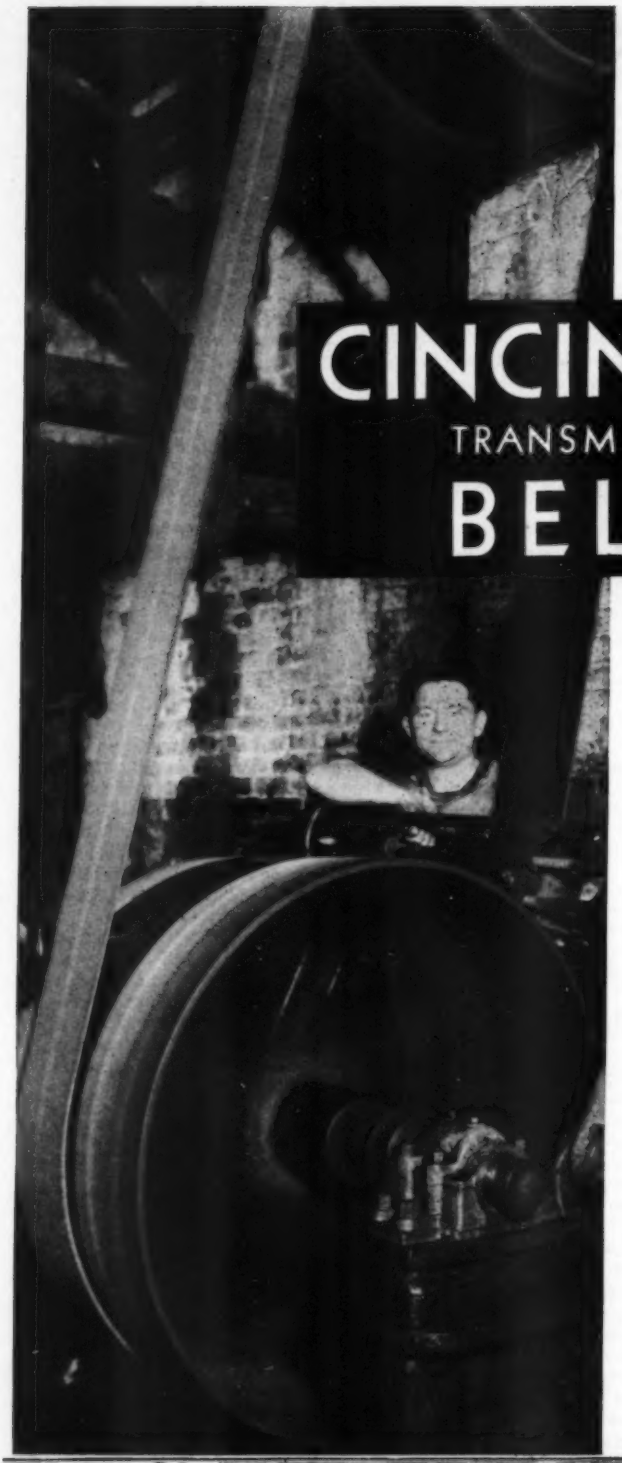


Illustration shows a Cincinnati Duoflex Belt operating on a cone pulley drive in the paper mill of the Bogota Paper and Board Co., Bogota, N. J.

CINCINNATI TRANSMISSION BELTS

"...have given us perfect service"

reports **BOGOTA PAPER & BOARD CO.**
BOGOTA, N. J.

This statement typifies the performance rendered by Cincinnati Belts in paper mills throughout the country. "Perfect service" implies, not only long, trouble-free operation, but also efficient, slip-tight transmission that minimizes power leaks. ● No matter what type the drive may be, there's a Cincinnati Belt to meet its specific requirements. Our engineers will be glad to help you determine the right belt for your needs. Cut transmission costs now. Investigate Cincinnati Belts.

The Cincinnati Rubber Manufacturing Co.

CINCINNATI OHIO

some 40,000 to 50,000 cords were salvaged, most of this being saved by throwing it into Ha Ha Bay, across the mouth of which booms had been thrown to prevent the logs from escaping. The loss of nearly $2,500,000 is fully covered by insurance.

The mill, which had been idle for many months, was to have been started up on May 2nd, the intention being to operate it until the wood had all been converted into paper, which would have required about two years. About two weeks were required to clear away the debris and make the necessary repairs to the mill after the fire, and operations were started up on the 23rd of last month. It will be kept in operation until the salvaged wood shall have been all used up, which, it is estimated, will take about five or six months, thus giving employment to between 500 and 600 men for the whole summer.

◆ MATURITY DATE of $3,500,000 of 6 per cent five-year notes of the Duke-Price Power Co., which fell due on April 15 last, has been for all purposes extended for another three years. This was effected by the formation of a syndicate representative of the company's large shareholders, such as Aluminum, Ltd., various Duke interests, Shawinigan Water and Power, and Price Bros., which appointed the Guarantee Trust Co. of New York to act as its agents to purchase notes as presented by public holders for redemption. These notes were turned over to the respective syndicate members who will hold them as an investment until April 15, 1935, thus relieving the company of the necessity of having to make a heavy cash outlay this year.

◆ Draft By-Laws for New Safety Association

Representatives of companies included in the pulp and paper section of the Quebec industry under the Workmen's Compensation Act have organized a safety association. The meeting was held on May 3rd, at the Pulp and Paper Association Building. Acting under the Workmen's Compensation Act, and following the requirements of the Workmen's Compensation Commission, the temporary committee on organization had registered as an Association, adopting by-laws that had been distributed to companies coming under this section, which were duly approved by the government. The meeting was constituted as the first general meeting of the Association, and elected Louis Armstrong, of Canada Power & Paper Corp., as chairman of the meeting and W. L. Bennett, of Brown Corp., as secretary of the meeting.

The rules for safety in plants, both as to equipment and working practices, were read to the meeting. These rules had been approved—in fact, practically laid down—by the Commission, and approved also by the Lieutenant Governor-in-Council. A few minor changes were made in the by-laws having to do with the making of amendments, making the number of directors seven instead of five, and specifying that the treasurer, as well as the president and vice president, shall be directors.

At a meeting of the board of directors held the same day, the following officers were elected: President, Louis Armstrong; vice president, H. Kennedy; treasurer, W. L. Bennett; secretary, to be appointed at a subsequent meeting.

◆ ALARMED over the fact that since the beginning of the year a total of 125 forest fires have raged in northern Quebec, menacing the province with the loss of millions of dollars worth of valuable timber, the Quebec government has decided to close for an indefinite period certain forestry areas to the public. The first districts to come under the ban are those of Gatineau and Labelle, both of which comprise several hundred square miles and are heavily forested. Any possibility of their being reopened this summer is dependent upon a lengthy and heavy rainfall; and even then the government will be wary as to the granting of permits for circulation.

◆ AFTER being closed for several months, the La Tuque mill of the Brown Corp. was started up on May 17 on a four-day-per-week schedule with a payroll of about 200 men. It is expected that in the course of a few months the mill will extend its operations to full time.

◆ ANGLO-CANADIAN paper mills are keen on accident prevention. The mill is divided into four groups having approximately the same number of employes, and there are four contests each year, which run three months. At the end of each period the group having the best record draws lots and the employe getting the lucky number receives a gold watch. In drawing up the records, stress is laid principally on the frequency of accidents as being the best measure of the safety-mindedness of the worker.

ONTARIO

◆ Suggest Lifting Pulp Wood Embargo

It is reported that, in order to relieve unemployment in the Thunder Bay district and to give work to some 3,000 men, the Ontario Government is considering the advisability of lifting the ban on the export of pulp wood in three townships bordering Lake Superior near Nipigon. It is estimated that these townships contain 100,000 cords of wood. Hon. William Finlayson, Minister of Lands and Forests for Ontario, consulted with the leading business men, pulp wood operators and others, in Fort William and Port Arthur, and although a number were opposed to the plan, a resolution was carried urging the department to proceed to call for bids. The townships involved are heavily timbered with spruce and have been reserved by the government for the possible location of another newsprint mill at Nipigon or at the head of the lakes.

Pulp wood men of Fort William and Port Arthur first approached the department with the assurance that there is a market available for 100,000 cords of wood in Ontario and United States mills and that, if the three townships were opened for cutting, Crown dues of $1.40 a cord levied, and the embargo temporarily suspended, operators would be able to meet present pulp wood market prices and give more than 2,500 men work throughout the summer and a smaller number work through to next spring.

Hon. Mr. Finlayson said that the government frankly did not favor lifting the pulp wood embargo, but in view of acute unemployment, aggravated still further by the close of trans-Canada camps, it is ready to suspend the ban for this year only, if Lake Head cities believed distressing conditions will be alleviated somewhat.

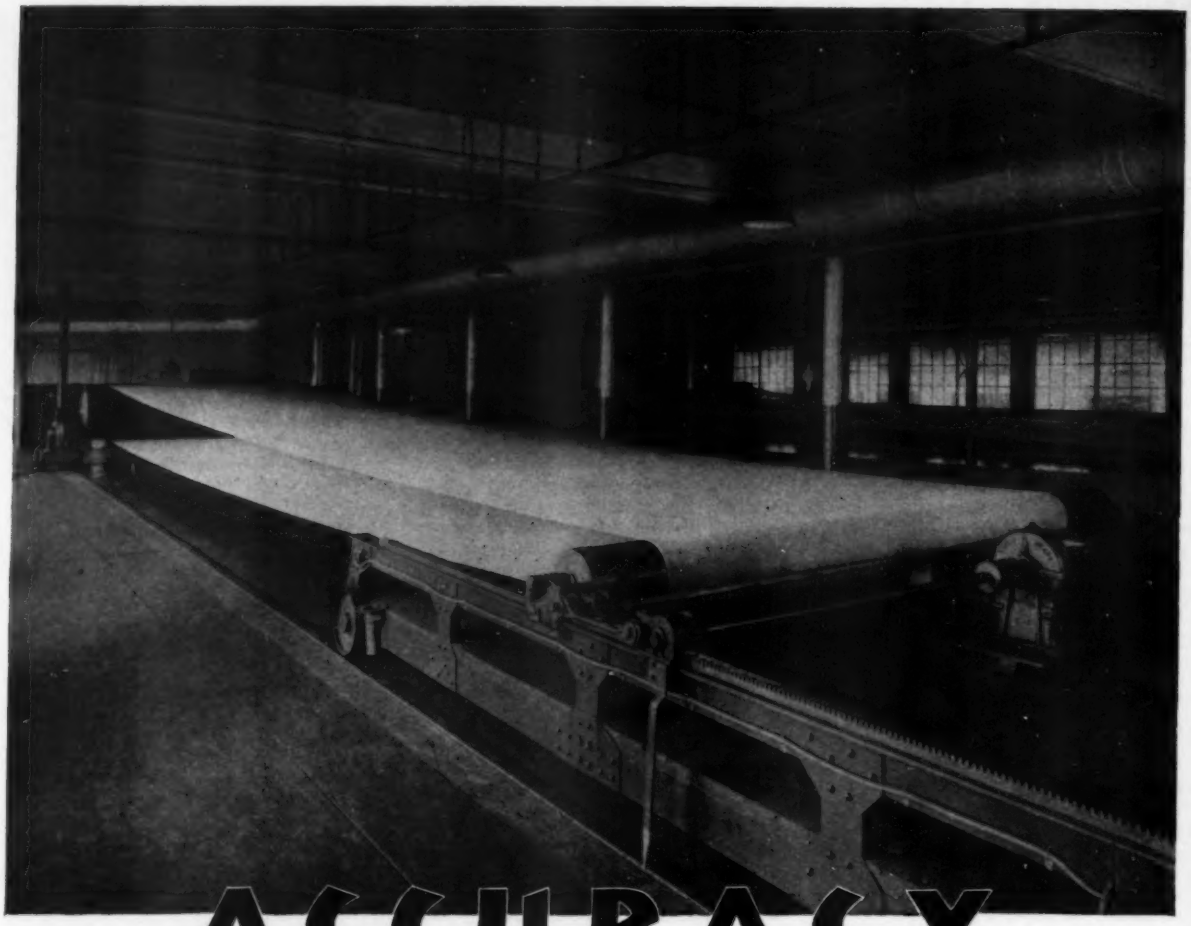
◆ May Reorganize Minnesota and Ontario Paper

The committee representing holders of first mortgage bonds of the Minnesota and Ontario Paper Co. has received deposits of more than $20,300,000, or 84 per cent, of the bonds outstanding, it reports. In a letter to the bondholders it says it has engaged in preliminary discussions looking toward reorganization of the company, but that no definite plan has been formulated.

The letter says the receivers have contracts for more newsprint tonnage than when the company went into receivership, although the market price is now lower. The receiver recently reopened the kraft mill at International Falls, Minn., which had been closed for more than ten months, and is adding some specialties to the line of products.

◆ THE PROCESS of eliminating pitch from jackpine and spruce in the manufacture of pulp, which is now being tested at Sault Ste. Marie, has aroused the interest of homesteaders and others who hold wood lots in the Thunder Bay district. It is believed that great benefit would accrue through widening of the market for jackpine, of which there is a large amount in that district. At present it is used almost exclusively for railway ties, which permits use of the larger sizes only. If the smaller trees could be used for pulp wood, the cost of cutting would be reduced. Making available of balsam for the same purpose would benefit in similar manner by making it unnecessary to leave large quantities of timber standing when an area is being cut over for spruce.

◆ ACCORDING to a statement in the Ontario Legislature by Hon. William Finlayson, Minister of Lands and Forests, the staff of Ontario's fire fighters will be considerably less this season than last year. Three airplanes previously engaged on detection and suppression work are to be discarded and a considerably smaller ground force of fire-fighters has been necessitated. The Minister stated that last year the great-



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Each step in the manufacturing of Kenwood Felts is checked by means of a thorough and meticulous inspection to make sure that in every way it conforms to certain pre-established standards.

Accuracy in the matter of size, and ability to pull certain loads without distortion is a vital quality in every felt. Kenwood Research has developed a method of accurately measuring these qualities.

The finished size of all Kenwood Felts is checked under known and recorded degrees of tension. The amount of tension registered when the felt is at its proper length and width is a barometer of its load carrying ability. Each felt must meet definite standards before it can be passed by the inspector.

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est number of fires in the history had taken place, no fewer than 1,800 fires having been conquered, while less than 100,000 acres of timber were destroyed. Such results, he added, had been attained by means of a finely-perfected force working rapidly and securing control of the fires before they had got out of hand. Last fall, however, twelve pilots had been released from the service, and these are not to be taken back this summer because of the necessity for lessened expenditures.

◆ INTERLAKE Tissue Mills Co. has equipped its No. 2 machine with a Voith slice and a new shake.

◆ AFTER having been closed down for nearly two years, the mill of the Thunder Bay Paper Co. at Port Arthur, which is operated by the Abitibi Power and Paper Co., was reopened on May 9 at 50 per cent of capacity, giving employment to 200 men. Stocks of wood in store at the mill amount to approximately 70,000 cords, which is sufficient to keep the plant going for about nine months.

◆ IT IS REPORTED that work has been started at the Espanola Division of Abitibi Power and Paper Co. with a view to reopening the mill which has lain idle for the last couple of years. There is two years' supply of pulp wood at this mill, and for some time the company carried on negotiations with the Canadian Pacific Railway to transport the wood to the Sault Ste. Marie Division which is operating on part time. Failure of these negotiations is said to have decided the paper company to start up the mill in order to cut down its inventories and also to use up the wood before it rots on the ground.

◆ AUTOMATIC Paper Box Co., John St., Toronto, has closed purchase negotiations by which they take over a comparatively new factory building built for Smith Bros., automobile body manufacturers, on Logan Ave., Toronto. The plant is 170 by 120 feet, one story high, and is reported to be well adapted for paper box manufacturing purposes.

BRITISH COLUMBIA

◆ INSTALLATION of two new barkers, at a cost of approximately $20,000, has been completed by the B. C. Pulp and Paper Mills at its Woodfibre plant. These machines were put in to remove bark from sawn cants, which are run into the machine in 20-foot lengths. The barkers are similar to those recently put in the mill of the Weyerhauser company, in the State of Washington, but embody a number of original features which were specially designed by the officials of the B. C. Pulp and Paper Co.

◆ THE SIDNEY ROOFING and Paper Co., Ltd., Granville Island, Vancouver, with head offices in Victoria, have been appointed British Columbia agents for Duralith (Canada), Ltd., manufacturers of a new form of interior wall finish. E. J. Parks, merchandise manager of the Duralith Co., recently arrived on the Coast, where he will remain for some time introducing the new line.

NORTHERN NEW YORK

◆ CHARLES D. BINGHAM, for years treasurer of Bagley & Sewall Co. of Watertown, died at his home in Watertown Thursday, April 28, at the age of 86. He became associated with the Bagley & Sewall Co. in 1887 and was soon made general office manager. Following the death of Edmund Quincy Sewall in 1892, Mr. Bingham was elected secretary of the company. On Sept. 30, 1897, he was elected treasurer, which office he continued to hold until February, 1931, when he retired. Mr. Bingham was a director of the company, relinquishing that position upon his retirement.

◆ Container Plant to Be Moved to Utica

H. D. Cornwall, president of the Pa Pro Co., of Glenfield, manufacturer of fiber containers, has announced that the plant will be moved to Utica, where the company has leased, with option to purchase, the property of the Skenandoa Cotton Co.

At the Utica location, the company will continue the manufacture of fiber containers and will add to this the manufacture also of corrugated containers. About 50 persons will be employed at the Utica plant.

◆ ARTHUR J. ERICSSON, who accepted a position with the St. Regis Paper Co. May 1, has begun to work out and market a line of specialty papers to be produced by this company for the trade. The Harrisville mill of the St. Regis Co. is especially adapted for color lines of paper containing a large percentage of ground wood pulp, such as writing manilas, oiled packing manilas, cheviot cover papers and similar lines. Mr. Ericsson was for several years with the Union Bag & Paper Corp., and during recent years was sales head of the Crepe-Kraft Co. of Newark, N. J.

◆ ERNEST B. EDDY of Watertown, for years general manager of the National Paper Products Co. plant at Carthage, has resigned, effective immediately. While he relinquishes active duties, he retains his connection with the company in an advisory capacity. Mr. Eddy has been manager of the Carthage plant 27 years, assuming that position when the mill was owned by the Carthage Tissue Paper Co. Previous to that time he was connected with the St. Regis Paper Co. at Deferiet. Assistant Manager Charles A. Brondona is now in charge of the Carthage mill.

◆ NAPOLEON RIGABAR, formerly plant superintendent of the National Paper Products Co. plant at Carthage, recently accepted a position as superintendent of the Adams paper mill at Baldwinsville, Mass. Mr. Rigabar was succeeded at Carthage by Elmer Emigh who came from the west coast division of the Crown Zellerbach interests.

◆ ARTHUR K. HINDS, vice-president and manager of the Carthage Machine Co. since 1922, has resigned his position with that concern to become associated with the Climax Manufacturing Co. at Castorland, paper box manufacturers. Mr. Hinds is a member of the American Society of Civil Engineers and a licensed New York state professional engineer. He has had charge of erection of several large paper mills in this country and in Canada. He becomes sales manager of the Climax Co.

◆ A METHOD DESCRIBED as a process for digesting fibrous materials, and the apparatus to be used, have been patented by Thomas L. Dunbar of Watertown, with 38 construction elements recognized as original. The method contemplates treatment of a fibrous material by acid liquor, discharging air through air vents until gas begins to escape, at which time the vents are automatically shut.

◆ Syracuse Offers Summer Forestry Course

For the first time, courses in forestry will be given at Syracuse University Summer School. These courses have been added in response to a demand from many grades of teachers, particularly those interested in biology, geography and social science.

The courses will be given by and under the direction of Dr. Joseph S. Illick, formerly chief forester of Pennsylvania and a nationally known figure in the profession. The instruction will be under the auspices of the New York State College of Forestry at Syracuse, July 5 to August 16.

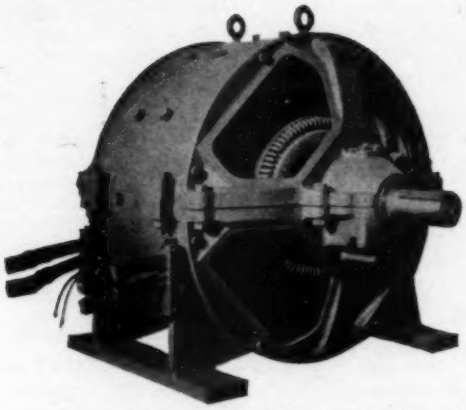
❖ ❖ ❖

◆ Maine School of Papermaking

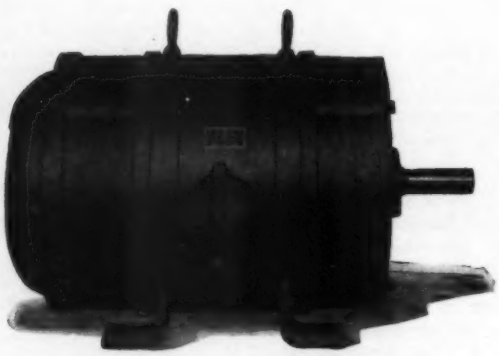
The thirty-third annual summer session of the University of Maine School of Papermaking is announced to begin July 5, the term lasting six weeks, with examinations for students desiring credit held on August 11 and 12. All work completed will be given the regular University credit for either the Bachelor's or Master's degree. The work in the pulp and paper school is designed to meet the needs of men with or without technical training who have had practical experience and who desire to gain a scientific understanding of pulp and paper manufacture, also apprentices in pulp and paper companies. The head of the faculty is Dr. Charles A. Brautlecht, Paul DeCosta Bray being special teacher in pulp and paper chemistry and technology. The faculty also includes John G. L. Caulfield, a paper specialist, and Edward G. Kelley, general chemistry and qualitative analysis. Visits to all kinds of pulp and paper mills will be made as part of the course. Correspondence concerning the pulp and paper courses should be addressed to Dr. C. A. Brautlecht, University of Maine, Orono, Me.

RELIANCE MOTORS *for* PAPER-MILL DRIVES

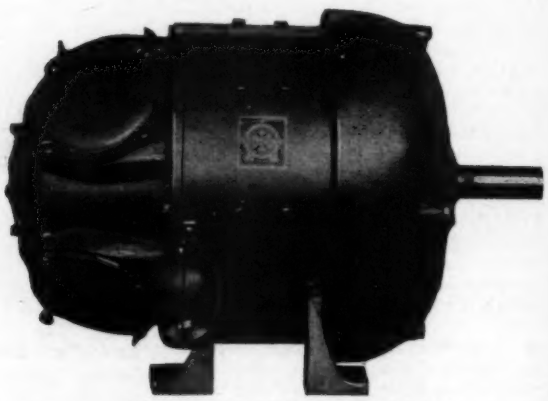
Fully-enclosed dust-tight, squirrel-cage motors with cartridge-type ball-bearings.



Direct-current motor for adjustable speed and constant speed service, in sizes up to 350 hp.



Fully-enclosed fan-cooled induction motor furnished in sizes up to 150 hp.



Reliance motors are built with all the various enclosures; semi-enclosed, fully-enclosed fan-cooled dust-tight, water-tight, splash-proof, etc.

Vertical induction motor with ring base. This construction may be obtained for the various a-c. and d-c. motors.

Reliance Motors are all of the heavy-duty type designed for severe service such as may be found in paper mills. Many years of operation in a number of the largest mills have given them an enviable reputation for sturdiness and reliability.

A-c. and d-c. motors may be had to suit practically every paper-mill need. Whatever your requirements, call a Reliance Sales Engineer. He can help you.

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RELIANCE A-C D-C MOTORS

NEW ENGLAND

♦ Petition to Liquidate Paper Company Denied

Receivers of the George W. Wheelwright Paper Company following petition to the Suffolk Superior Court have been granted authority: (a) To sell paper to merchants on a guaranteed price basis, that is, to protect customers against further price declines; (b) to expend certain sums for preparation of sample books, and (c) the court denied the petition of the North American Coal Corporation to force immediate liquidation of the company and its assets.

The coal company has been the sole creditor asking for liquidation and the court lost no time in denying its plea. Receivers pointed out that the company sold $116,000 worth of paper in December, that its gross sales were $73,000 for January, $54,000 for February, about $85,000 for March; that its gross sales last summer and fall at times exceeded $100,000; furthermore, at present reduced costs, the company could about break even on $75,000 sales. Consequently, there were hopes that under a better business period some profits might be derived and creditors realize more.

♦ RUSSELL Paper Can Company, of Chelsea, Mass., has recently begun the manufacture of "Snap-Tite" paper cans for ice cream and food products. This is a new type of container with an easily applied cover which locks on. It is manufactured by special machinery made by the company itself. The company has acquired 72,000 feet of floor space for the production of this line although the proprietors, Harlow M. Russell, president, and Susan V. Russell, treasurer, are veterans of the paper box business, having a number of new types of paper containers to their credit.

♦ THE FIRST important wage controversy in the New England paper industry has ended in the manner that the conditions make inevitable. Directors of the Cushnoc Paper Company have decided to close the mill at Augusta, Me., and transfer unfilled contracts to the Maine Seaboard Paper Company at Bucksport which is under the same general management and ownership. Walter S. Wyman, president, previously had announced a cut in wages, the second in the past year, and employees immediately met and rejected it. The closing will affect about 250 men. Mr. Wyman expressed the belief that it would be difficult to re-open in the near future as Maine Seaboard's capacity was sufficient to take care of this business.

♦ OXFORD Paper Company, Rumford, Me., one of the first companies in the paper industry to effect a 10 per cent wage reduction, has made a second cut of an equal amount effective June 1. However, wage earners were somewhat comforted by the fact that the Rumford Realty Company's dwellings in which many of them make their homes will have a 10 per cent reduction in rent.

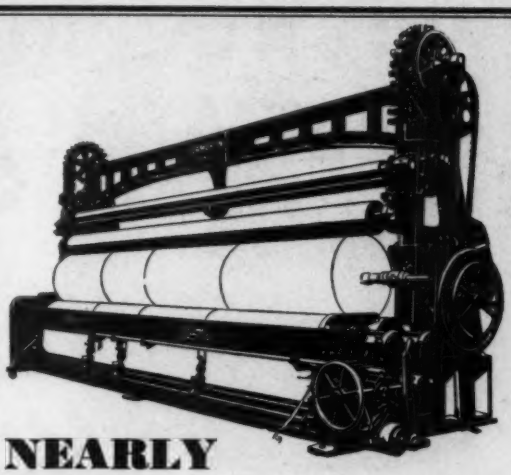
♦ AN excellent reception has greeted the new Brown Company paper towels, according to Andrews Paper Co., distributors of Brown Co., products in Boston and New England. New towels are known as Romal Brown, and Romal White, both moderately priced, absorbent, sanitary.

♦ FIRST direct water shipment of newsprint paper from the City of Quebec to Boston arrived May 18th on the SS. Tortugas with 3,459 rolls of news for the Boston American, Hearst daily; the vessel carried another 2,041 rolls for the Hearst paper in Baltimore.

♦ Traffic Matters and Rate Changes

The Maine Central and B. & A. railroads have acceded to request of the New England Paper & Pulp Traffic Association by reducing rates on pulpwood from shipping points on the latter carrier to points on the Central. The reductions are scheduled to go into effect later, the reason given by the railroads being "to reduce rates to a basis comparable with lumber."

This action has not met with satisfaction, and the associa-



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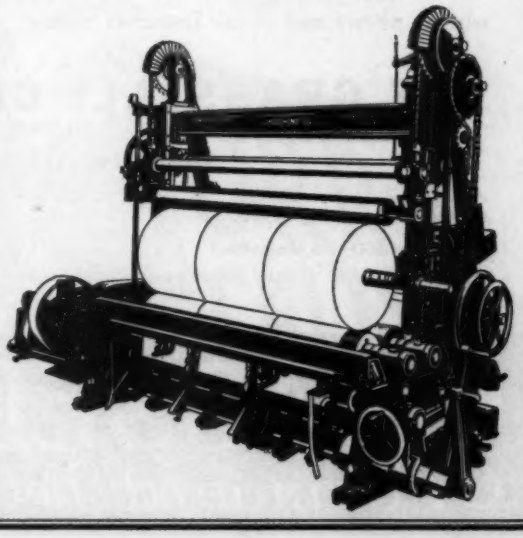

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tion has arranged for a conference at Portland June 7 to obtain a more favorable basis. The rates scheduled are high as compared with similar rates applying in other sections.

By way of providing daily deliveries and cheaper transportation service to New York City paper merchants from mills in the Fitchburg, Mass., district, trucking companies have agreed to furnish overnight service to Manhattan for 40c per cwt. to consignees' door. The railroads have a less carload rate of 58c which they refuse to reduce.

The present rate of 17.5c per cwt. on wood pulp from Boston to Mechanicville, N. Y., will be reduced to 16c to put pulp arriving ex-vessel at Boston on a parity with similar arrivals through New York.

Pulpwood from Burlington, Vt., to Mechanicville, N. Y., is reduced from 21c to 13c per cwt.

Stop-off in transit to complete loading of cars on the Boston & M. R.R. has been extended to cover two or more stop-offs at the rate of $10 per car for each stop-off instead of one, as now provided in the tariff. Applies on paper, envelopes and paperboard.

◆ OWING to wage controversy, the Cushnoc Paper Company has decided to close its mill at Augusta, Me., and transfer unfilled contracts to the Maine Seaboard Paper Co., Bucksport, Me., which is under the same general management and ownership. The closing will affect 250 men.

◆ SIXTY CARLOADS of Olympic fibre, wood pulp from the West Coast, were burned in a fire believed to have been started by boys, in a storehouse of the S. D. Warren Company at Cumberland Mills, Me. It is understood that the loss was placed at $120,000.

◆ PETITION in bankruptcy was filed May 27 against the Globe Paper Company, fine and wrapping paper merchants of Boston. The total claims of the petitioners amounted to less than $1,700. A number of leading paper mills are listed among the Globe creditors. This is said to be the first important failure among New England paper merchants.

◆ DEERFIELD Glassine Co., Munroe Bridge, Mass., has consolidated its Boston office in charge of Norman Scott with the mill office at Munroe Bridge. Mr. Scott continues to be sales representative for New England.

◆ MAX FRANK, connected with John Carter & Co., Boston merchants, for fifty years, a large part of that time as buyer of paper, died recently at the age of 73. Mr. Frank was widely known among mill men, and was a deeply respected figure in the Boston trade.

◆ INTERSTATE COMMERCE Commission has denied the request of New England papermakers for a suspension of rates by rail and water to Boston, New York, Baltimore and Philadelphia on printing paper from the Canton, N. C., mills of the Champion Fibre Co.

◆ Paddock Paper Company Opens Boston Division

Walter Temple, until June 1st with the Globe Paper Company, Boston, together with E. Stanley Burns, formerly with Rutter & McNaught, Inc., Boston, have opened a Boston office at 80 Federal street, which will be the Boston division of the Paddock Paper Co., paper merchants of Providence, R. I.

The Paddock company is agent for the Champion Coated Paper Co., Hamilton, O., and under the new arrangement, its Boston office becomes agent for Champion and takes care of the Champion agency formerly held by the Globe company. Other lines will also be handled.

◆ NEW CONNECTIONS made by salesmen formerly with Globe Paper Company are: James C. Murray, Ernest L. Boyd, Wm. Brown, and F. Parker Holdridge are now connected with Rutter & McNaught, Boston; Joseph Wenning has become associated with the Valley Paper Co., Holyoke, Mass.

◆ MASSACHUSETTS Department of Labor and Industries reporting employment conditions in the Bay State during April, showed that in 27 paper and pulp mills there was a

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This is no sweeping platitude. It is true . . . absolutely true. Mills that have taken the slight trouble to investigate can vouch for the accuracy of the statement . . . which mills, by the way, are today Orr users and Orr boosters. The line is complete . . . contains the exact length, width, and texture your particular machine must have.

An inquiry will bring an Orr Felt specialist qualified to suggest the particular felt that will remove the most water . . . and give the best service.

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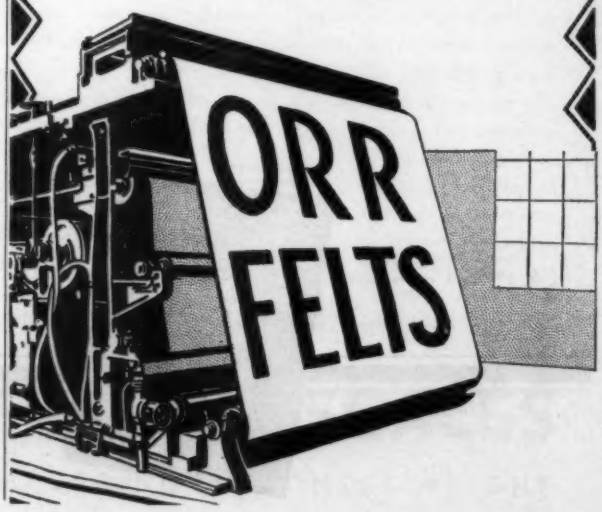

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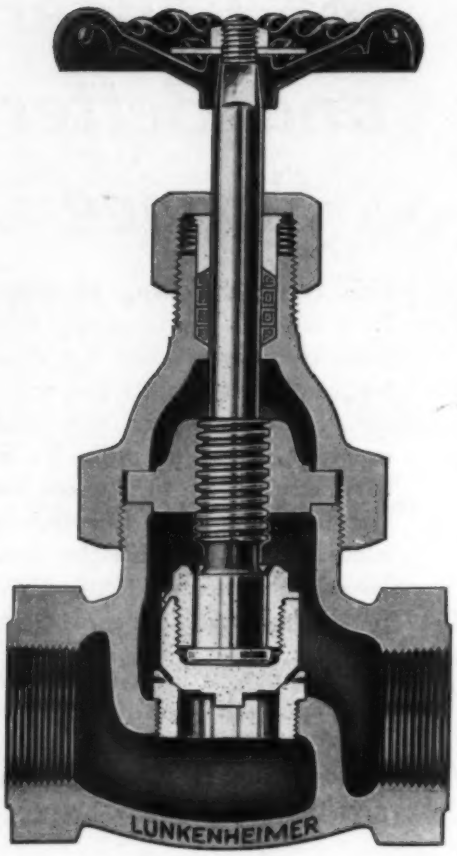

A NEW PRODUCT

Fig. 1720

600 lb. STEEL

Globe Valve

This Lunkenheimer design reflects a pronounced advance in the construction of steel valves of the inside screw type—a Bonnet-Thread-Bushing, made of an alloy selected primarily for its wear resisting properties at high temperatures. This construction, together with the specially heat treated stainless steel seat and disc should commend the valve to any user of inside screw steel globe valves.

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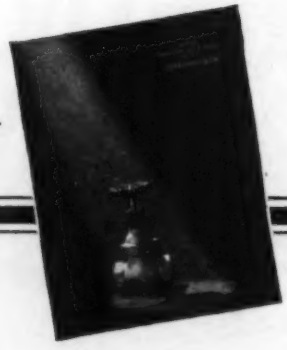

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decrease of 1.6 per cent in the number of wage earners employed, and a drop of 4 per cent in the amount of payroll, with an average decline of 50 cents weekly in earnings per worker. The percentage on full time was 14.6 per cent of the total number at work. This compared very favorably with some of the other leading industries.

◆ T. K. CREE, vice-president Alling & Cory Co., and A. H. Chamberlain were speakers at the May meeting of the New England Paper Merchants Association at the Harvard Club of Boston. Both Mr. Cree and National Secretary Chamberlain spoke of credit conditions, a subject to which New England merchants are giving an unusual amount of attention. Considerable success has attended the efforts of the wrapping paper merchants of Boston in checking credits through the Boston Credit Men's Association.

WISCONSIN

◆ Tax Summary of Paper and Pulp Mills

What has happened to the paper industry in Wisconsin as a result of the business depression is shown in figures compiled by the Wisconsin Tax Commission from corporation income tax returns. Taxable incomes of paper and pulp mills and converting units dropped from a net in 1929 (after deducting losses) of $14,070,600 to $3,092,100 in 1930. The taxable income in 1928 was $8,348,000 and losses totaled $525,100. In 1929, the income was $14,803,200 and losses $732,600. In 1930 it was $5,273,500, with losses of $2,181,400.

In the paper classification, taxable incomes less losses were $5,834,400 in 1928, $12,623,500 in 1929 and $2,915,000 in 1930. Paper container companies showed $788,200 net taxable income for 1928, and net losses of $9,000 in 1929 and $523,800 in 1930. Under the heading, "All other paper, pulp and products," the net for 1928 was $1,200,300; for 1929, $1,456,100; 1930, $700,900.

Out of 104 corporations reporting, 76 showed taxable incomes and 18 showed losses in 1928; 78 showed incomes and 25 losses in 1929, and 60 showed incomes and 44 losses in 1930. Ten showed neither income nor loss in 1928 and one in 1929. In a breakdown of these totals, the results were: 1928, 43 paper mills reporting, 43 with incomes, 32 with losses and 5 with neither income nor loss; 33 container plants, 24 with incomes, 5 with losses and 4 average; all other paper, pulp and products, 28 reporting; 20 with incomes, 7 with losses and 1 average.

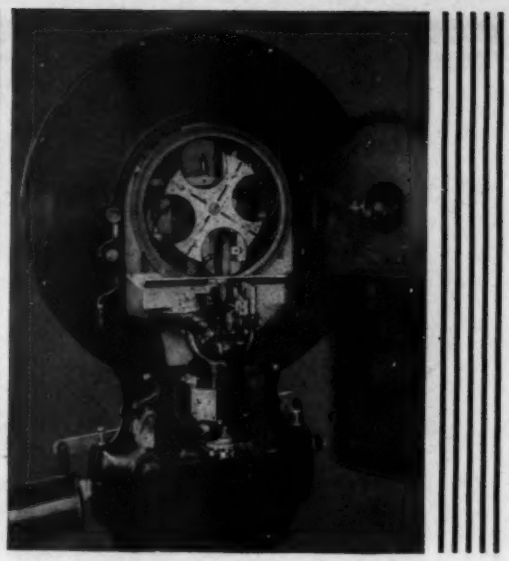
For 1929, 34 paper mills with incomes, 9 with losses; 21 container plants with incomes, 11 with losses, 1 average; 23 paper, pulp or miscellaneous with incomes, 5 with losses.

In 1930, 26 paper mills with incomes, 17 with losses; containers, 17 with incomes, 16 with losses; all others, 17 with incomes, 11 with losses.

Further comparisons show that 93 plants reporting had book investments of $92,688,000 and net taxable incomes for 1930 of $1,790,400, or 1.93 per cent of net income to investment. Out of 57 corporations with taxable incomes, a book investment of $59,924,000 was shown and net income of $3,487,500, or 5.82 per cent of income to investment. The other 36 corporations with losses showed book investments of $32,674,000 and 1930 losses of $1,697,100, or 5.18 per cent of loss to investment.

Twenty-five paper mills with taxable income showed book investments of $44,111,000 and incomes of $2,482,000, or 5.63 per cent of income to investment. Fifteen others showed book investments of $29,240,000 and 1930 losses of $1,327,000, or 4.54 per cent of loss. In the container group, 17 showed book investments of $4,644,000 and 1930 taxable incomes of $146,100, or 3.15 per cent; 12 with book investments of $1,730,000 showed losses of $221,200, 12.78 per cent. All other classifications showed 15 corporations with book investments of $11,169,000 and 1930 taxable incomes of $859,400, or 7.69 per cent; 9 with book investments of $1,794,000 showed losses of $148,300, or 8.27 per cent.

◆ FIRE on May 30 completely destroyed the Kaukauna Ground Wood & Pulp Company's mill at Kaukauna. The mill had not been operating for about a year due to low water



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FOUNDED 1863

conditions. It will not be rebuilt, according to M. H. Niesen, president and general manager. All of the machinery was ruined when the building burned to the ground, and the loss is placed at approximately $50,000, partly covered by insurance. The fire is believed to have started in shavings in the wood room. No one was in the building at the time and the flames had completely enveloped the structure before the local fire department arrived.

♦ Paper Mill Representatives Confer at Madison

Recent research findings of the United States Forest Products Laboratory, Madison, were reported at conferences held there by paper mill representatives with Carlisle P. Winslow, director. One of these was with the technical advisory committee of the American Paper and Pulp Association, consisting of Allen Abrams, of the Marathon Paper Mills Co., Rothschild, Wis., president of the Technical Association of the Pulp and Paper Industry; H. A. Bankus, of the Crown Zellerbach Corp., San Francisco; R. W. Hovey, Oxford Paper Co., Rumford, Me., and George S. Holmes, general manager, Brown Paper Mills Co., Monroe, La.

Reports given by laboratory experts to representatives of producing regions in all parts of the country showed experimental production on more than 25 kinds of paper from standard or little-used pulp wood species, and on recent progress in pulping and machine control, improvement of yields and evaluation of materials. General satisfaction was expressed with the work the laboratory is doing.

♦ SAVINGS on bituminous coal shipments aggregating $150,000 a year will be possible as the result of a reduction ranging from 15 to 38 cents a ton in freight rates from docks to paper mill cities, granted by the Wisconsin Public Service Commission following filing of a petition by the Wisconsin Paper and Pulp Manufacturers' Traffic Association.

♦ WORK will be started soon on a new government power dam to replace an obsolete one on the Fox river at Rapid Croche, below Kaukauna. About $60,000 will be spent on this power improvement. A total of $113,930 is to be spent on a new dam for replacement of an old one at Little Chute, where the Combined Locks Paper Co. has one of its mills.

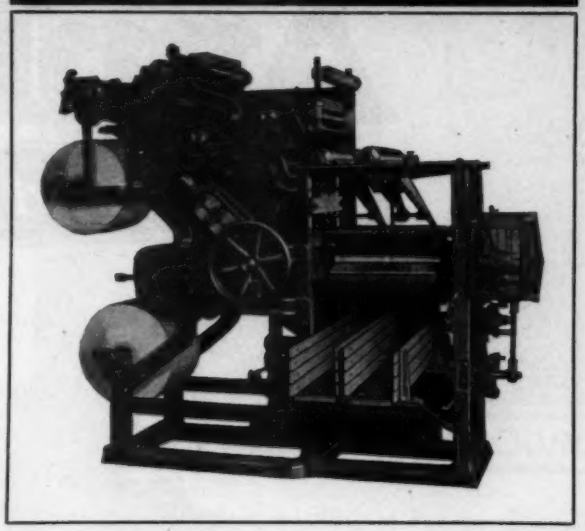
♦ THROUGH THE PAYMENT of $2,400 and an agreement to repair and maintain permanently portions of highways affected by high water, the Consolidated Water Power & Paper Co. has ended litigation over a period of years with the township of Hull, on the Wisconsin river near Stevens Point. Riparian damages were claimed.

♦ REBUILDING of the mill of the DePere Paper Manufacturing Co., DePere, is expected to be undertaken this summer. The plan is to build a one-machine mill for the time being, to replace the plant destroyed by fire some time ago. The debris of the ruined structure is being cleared away. It is understood that local financing has been obtained for the new mill.

♦ DIVERSIFICATION in the manufacture of paper and specialties has enabled the Tomahawk Kraft Paper Co., Tomahawk, to reach its full production quota in April, according to S. B. Bugge, general manager. The mill was only one of three in the entire kraft industry to accomplish this, as against an average of 45 per cent throughout the mills generally. This situation is favorable to continuance if tax legislation under consideration by Congress is not too drastic, Mr. Bugge said.

♦ CONSTRUCTION of a 20-ton fibre mill using basswood, popple and white birch will be started soon at Rib Lake, near timber sources of the northern part of the state. A company has been financed by local capital and will employ about 40 men. Organization of the company and announcement of its personnel have not been completed.

♦ JOHN D. BABCOCK, vice-president of the Wisconsin River Paper & Pulp Co., Stevens Point, passed away May 15 at the Presbyterian hospital, Chicago, from complications following a series of operations. The deceased was a son of



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APPLETON WOOLEN MILLS

Appleton, Wisconsin

C. A. Babcock, president of the company. He was but 32 years old, and had been connected with the company since completing his education at the University of Wisconsin and Harvard.

◆ THE COMBINED Locks Paper Co. has temporarily closed its 50-ton sulphite mill at Combined Locks. About 45 men were employed in this plant.

◆ OFFICERS selected by the Lake States section of the Technical Association of the Pulp and Paper Industry at the closing meeting of the season recently at Appleton, Wis., are: R. J. LeRoux, president; Dr. Otto Kress, vice-president, and A. T. Gardner, secretary-treasurer. These men all reside at Appleton.

◆ SIDNEY WELLS has been engaged as technical adviser by the Combined Locks Paper Co., Appleton, Wis. He resigned as director of research at the Nekoosa-Edwards Paper Co., Nekoosa, Wis., to take his new position.

MICHIGAN

◆ Cost & Technical Ass'n Holds Special Meeting

The Kalamazoo Valley Cost and Technical Association held its regular meeting May 26 at the Columbia Hotel, Kalamazoo.

The president, Frank D. Libby, of the Kalamazoo Vegetable Parchment Co., presided and introduced two very capable speakers for this meeting, which was intended to take the place of the Annual Interstate Meeting which had been scheduled for the week previous but canceled because of business conditions and the probability of a small attendance.

The first speaker was Duncan Rice, C.P.A., Kalamazoo manager for Lawrence Scudder & Co., public auditors and accountants. His subject for the evening was "Discussion of Financial Statements."

A financial statement can tell you considerable if you have the ability to read it and interpret the statements contained in it. The ability to analyze the above mentioned statement is needed more at the present time than ever before. Mr. Rice explained in quite some detail what one should look for and where he will find it.

The second speaker was Walter D. Bowldy, of the Cellulose Products Division of the Hercules Company. He spoke on "Properties and Uses of Dissolved Nitro Cotton."

◆ Tom Harvey Addresses Superintendents

Tom Harvey, of the Enterprise Machine Co., was the speaker at the regular May meeting of the Michigan Division of the Superintendents Association. Mr. Harvey's subject was "The Advantages and Savings Offered by the Enterprise Compensating Drive." Every one present showed intense interest in the subject and the discussion was quite general.

Mr. Harvey is very well known in the industry for his contributions to the mechanical operation of board machines and as a practical papermaker. He speaks from practical experience and his inventions are the result of this experience.

◆ ON THE EVENING of June 1, the Chief Engineers Club of Kalamazoo, journeyed to Holland, Mich., where they met at the Warm Friend Tavern at five o'clock. From the Tavern, they were escorted to the Getz Farm near Holland where an hour was spent in looking over the wonderful collection of animals for which this farm is noted. After returning from the farm, the engineers and their wives enjoyed an excellent dinner at the Tavern and enjoyed some fine entertainment.

◆ ALEX DUNCAN, manager of the western branch of the Paper Makers Chemical Corporation, together with his wife, are spending some time in and around Kalamazoo. They were called east by the death of Mrs. Duncan's father and will probably remain for some time.

◆ WATERVLIET Paper Co., Watervliet, announces that Clarence B. Lindstrom, formerly with The Paper Mills' Co., Chicago, is now sales manager of its organization.

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OHIO

♦ Miami Supers Hold Last Meeting of Season

The Miami Valley Division of the American Pulp and Paper Mill Superintendents Association held its last meeting for the season Saturday afternoon and evening, May 7, at the Hotel Miami in Dayton, Ohio, with seventy members in attendance.

Chairman Marshall Barker presided over both sessions. In the afternoon, S. A. Staege, industrial engineer of the Westinghouse Electric & Mfg. Co., Pittsburgh, gave an instructive address on "Application of Electricity to the Paper Mill Industry." The discussion by Mr. Staege first concerned the application of electricity from the standpoint of past applications and then from the viewpoint of future possibilities. He explained that during the past, electricity has been used to do the heavy work, to eliminate line shafts, to obtain greater flexibility of control and generally to improve the over-all efficiency of the plant. Pointing to the future use of electricity in the paper mill, Mr. Staege brought out that it is not necessary to be concerned about the general use of motors and controls, for they are universally accepted and recognized as the only efficient and up-to-date method of drive, but there will, of course, be further extension in the development and use of automatic control and there will be marked advances in the use of speed regulations of machinery of all kinds and in the simplicity and improved performance of such regulating and control equipment, but the greatest progress in the use of electricity will be in industrial process applications, as yet only slightly developed.

Mr. L. T. Murphy, of the Tennessee Paper Mills, Chattanooga, Tenn., gave an interesting talk on "New Board Mill Developments." The speaker gave a complete account of changes and improvements on the cylinder machine that have been effected at the Tennessee plant, and outlined the results obtained from such improvements. Considerable interest was manifested in Mr. Murphy's talk and the charts used to illustrate his application. A number of blueprints were distributed by him after the meeting.

At the evening meeting, H. T. Randall, who was responsible for securing John Carmody, editor of "Factory and Industrial Management," introduced the speaker. The theme of Mr. Carmody's address was management and its responsibilities. He brought out the importance of each executive, whether sales manager or superintendent, broadening his knowledge of the business, the materials used and the machinery in the plant.

♦ THE PAPER manufacturing plant of the Fox Paper Co., Rialto, was destroyed by fire May 23. Paper machines were ruined and the loss is estimated at $250,000. Fifty workers were engaged at the plant.

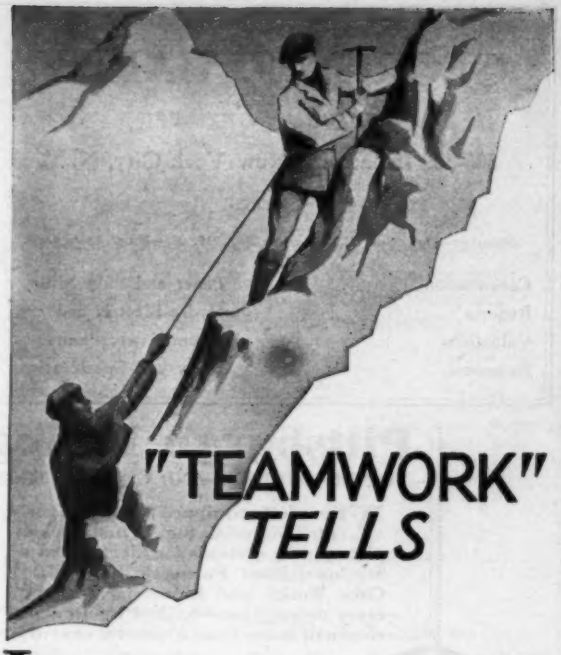
♦ CENTRAL OHIO Paper Co., Columbus, announces that effective June 1, the agency for Warren papers in its Columbus and Toledo Divisions was discontinued. The Miller lines of printing papers, which the company has marketed for over sixty years, will be stocked exclusively in its seven warehouses, which are located at Columbus, Cleveland, Toledo, Dayton, Detroit, Pittsburgh and Indianapolis.

❖ ❖ ❖

♦ New Box Company to Operate in Indiana

A new company, known as the Flashfold Inc. of Indiana, has recently been incorporated, with headquarters at Fort Wayne, Ind. This concern is a branch of the Flashfold Products, Inc., of Delaware, by which the organization of divisions in other sections of the country is contemplated. Charles C. Miller is president of both the Delaware and Indiana companies. Wm. L. Jones is vice president and Cary L. Baird, secretary. All officers are located in Fort Wayne.

The Flashfold company has purchased the assets and plant of the Wayne Paper Goods Co., founded by Mr. Miller, where his invention, flashfold boxes, will be manufactured. The authorized capital is 350,000 shares of common stock without par value.



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♦ Studies in the Colloidal Chemistry of Papermaking

The series of volumes projected by the Chemical Catalog Company, of New York, on *Colloid Chemistry, Theoretical and Applied*, as collected and edited by Jerome Alexander, has been brought to a close with Volume IV—Technical Applications (Second Series)—a volume of 734 pages, price $11.50.

There are forty-two chapters in the volume, beginning with a lengthy one on "Colloid Chemistry of Cellulose" by M. Samec, professor of chemistry at King Alexander University, Ljubljand, Jugoslavia, a most comprehensive treatment of the subject. Some idea of the extent of this chapter may be gathered from the number of references to books and articles consulted by the author, these alone covering eight pages of closely printed small type. The names of books and articles on cellulose by representatives of many nations and nationalities appear in the bibliography made up of 835 citations relating to comprehensive works on cellulose, as well as articles and periodical publications and patents.

Besides the chapter by Samec, there is a chapter by Prof. Dr. H. Wislicenus, of Tharandt, Dresden, on "Colloid Chemistry of Wood and Wood-Formation," and another by Dr. Rudolf Lorenz, lecturer at the Technische Hochschule, Dresden, on "Colloid Chemistry in the Paper Industry," a chapter which THE PAPER INDUSTRY had the privilege of reproducing in advance of publication (see THE PAPER INDUSTRY, Vol. XII, 2, 267).

The work of assembling and editing this great collection of papers, many of which had to be translated from foreign languages, must have entailed an extraordinary amount of painstaking care. It cannot but be regarded as a marvelous compilation of important papers on the technological applications of cellulose and one which will take its place with the standard reference books of undoubted value. We are quite in agreement with a statement by the editor in his preface to the volume that so broad a field has been covered in it that it would be difficult to find any chemist, engineer, biologist, physician, or manufacturer who could not locate much of great interest, and even much of direct application to his problems.

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The following abstracts are of the latest developments found in the foreign press and in the patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

◆ Sizing Paper With Cold Prepared Size

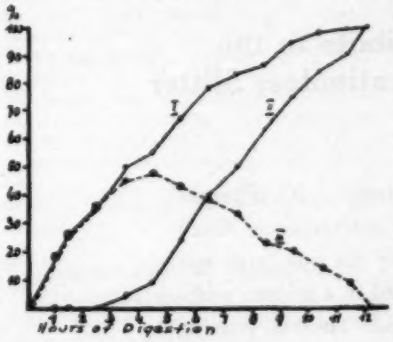
It has been established that the specific absorptibility of a pulp, which is closely allied to the pentosan content of the same, has a great influence on the sizing effect, and this is particularly true when distilled or very soft water is used. The sizing effect may be considerably improved by the addition of 0.4 to 0.8 per cent of soda (calculated on the fiber weight). Practical tests, extending over five months, substantiated this conclusion. It was also proven that the direct addition of soda to the rosin milk resulted in a still better sizing action. The installation for preparing the rosin size is described. Pieces of rosin of about 3 to 6 cm. are dissolved in 0.5 to 0.54 per cent concentrated sodium hydroxide solution. The latter is maintained in constant circulation by means of pumps. Approximately 55 to 60 liters of sizing solution with a content of 40 grams per liter are made in this installation per minute. The new method of preparing the size results in a saving of rosin, but there is an increase in the alum consumption. Very good results are however obtained if the sizing process is carefully carried out. The mass of fibers hydrates very considerably after the addition of the size. Iwanow. Bumaschnaya Promischlennost, volume 9, numbers 8/9, page 46ff.

◆ Reuse of Digestion Liquor in Straw Pulp Production

A method for the digestion of straw has been worked out. Experiments were made on the reuse of the waste liquor, which is first regenerated by the addition of sodium salts. Thus the straw was cooked in autoclaves with 28 per cent sodium sulphite and three per cent sodium hydroxide, based on the weight of the air-dried straw, for three hours at five atmospheres pressure. The waste liquor was analyzed and the required chemicals added to bring it up to strength again. Approximately 17.5 per cent of sulphite and 1.5 per cent of caustic soda. The strength of the paper is 4.360 meters in the case of unbleached paper, 5.040 meters in bleached paper. The more often the waste liquor is reused, the grayer the color of the paper produced. If instead of three per cent caustic soda, a portion of the same is replaced by the soda content of the waste liquor, then the results are poorer. The disintegration of the pulp is less and likewise the whiteness of the paper. The experiments showed, that by repeated reuse of the waste liquor there is no injury done to the quality of the pulp. The yield increases. The consumption of chloride of lime for bleaching the pulp is increased. The more sodium sulphite in the digestion liquor, the better the quality of the pulp and the lower the consumption of sodium hydroxide. When there is an insufficiency of caustic soda in the liquor, the silica is badly dissolved out of the stock. It is believed that the waste liquor from straw pulp production may safely be reused four to five times. Dolgow and Markow. Bumaschnaya Promislennost, volume 10, number 4, page 46.

◆ Precipitation and Colloidal Titration of Lignosulphonic Acid

This comprehensive study is divided into three parts, namely, colloidal titration, precipitation and experiments on theoretical evaluation. Fuchsin is the reagent used in the method. Under precipitation, there are discussed the gravimetric recovery of the fuchsin precipitate, fuchsin precipitates from pulp extracts, examination of the fuchsin precipitate, including sulphur determination, fractionated precipitation. It was found that fuchsin forms very difficultly soluble condensation products with lignosulphonic acids. It precipitates with betanaphthylamine non-precipitatable lignosulphonic acids. The most difficultly soluble lignosulphonic acids are determined by colloidal titration in their relative mass. A distinction can be made between a dark red difficultly soluble fuchsin precipitate and a light red, more easily soluble precipitate. The quantitative determination of lignosulphonic acids by precipitation with fuchsin is subjected to a number of uncontrollable errors and hence has only a limited value. The sulphur and nitrogen contents of the precipitated product increase with increasing solubility. There is a connection between the consumption of fuchsin and the decrease of the total sulphur dioxide during digestion. A characteristic curve is obtained for the digestion, which affords an approximate idea of the course of the sulphonation and hydrolysis. The curves show the decrease of sulphurous acid as well as the increase of fuchsin consumption at any time during the digestion period. The sulphur dioxide decrease curve in percentage of total decrease is shown as curve I in the figure, and the increase in the consumption of fuchsin as curve II, while curve III is the difference between I and II. Dr. Hennig. Der Papierfabrikant, 1932, pages 179-188.



◆ Determining Degree of Digestion of Sulphite Pulp

The method, which can be used for the determination of the lignin content in sulphite pulp, is based on a new method for establishing the quantity of lignosulphonic acid. This is not based on any conventional grounds and appears to be well suited for operating control, inasmuch as it is very rapid. The author based his method on the fact, that the sulphite pulp, after treatment with acid and complete removal of the excess of this acid, evolves a certain quantity of acid when treated with a salt solution, for example, a normal solution of sodium chloride. This quantity of acid corresponds almost accurately to the sulphur present in the pulp. This reaction is based on the fact, that the cation of the lignosulphonic acid is interchangeable with other cations. Thus an acid number is established which affords a fairly accurate measure of the lignin content. A comparison of the acid number with the methoxy content of the pulp showed that the two expressions are almost proportional to one another. It follows therefrom, that the acid number, which is expressed in cubic centimeters of 0.01 normality acid developed by the pulp, affords a means of following through the progress of the digestion. The test takes ten minutes in all to carry out. C. Kullgren. Svensk Kem. Tidskr., volume 43, page 161ff.

◆ Prevention of Foaming of Paper Stock

This patent is concerned with an improved method for prevention of the foaming of the paper stock by the addition of mineral, animal or vegetable oils. It has been found, that the oils will be most effective and their consumption will be least, when they are admixed with substances, which facilitate their fine distribution in the neutral or acid-reacting paper mass, without at the same time leading to the formation of a stable emulsion. Various volatile organic solvents, such as hydrocarbons, alcohols,

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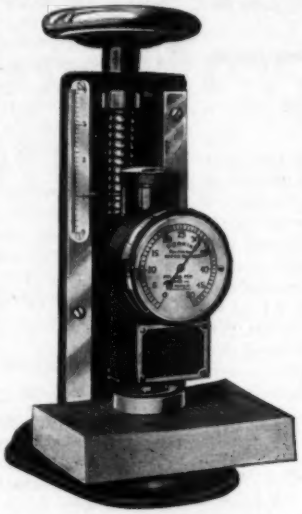

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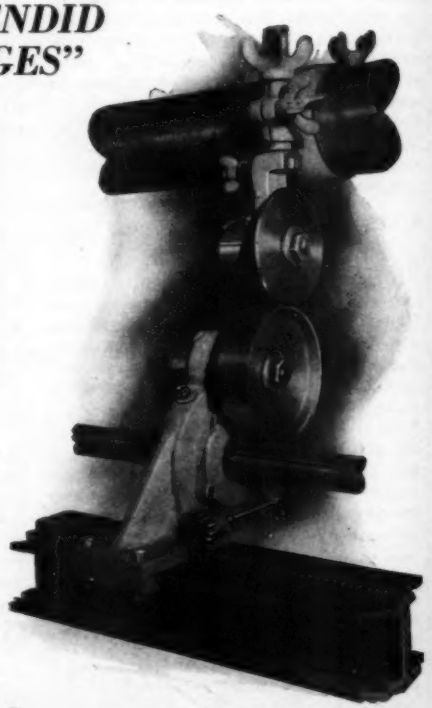

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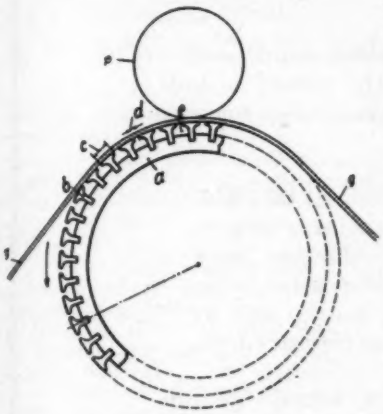
ketones, phenols and esters, may be used for this purpose. F. Schacht G.m.b.H., Braunschweig, Germany. German Patent No. 539,258.

◆ Roller for Paper Machines

As may be seen from the accompanying illustration, the feature of the new type of roller or cylinder is the insertion of a number of bars (b) in the shell of the roller parallel to the axis of the same. These bars have a T-shape and the suction cells (e) are therefore chamber-like. The top of the bars (b) has a width (c) and is therefore much wider than the separation (d) between the cells. The form of the suction cells is such that when the paper web is being subjected to suction, water is removed into the cells (e) while the cylinder is being rotated and this water is held back in the cells due to the wide tops of the same over a wide arc of rotation from the vertical. The water is released from these cells only when the paper web is no longer in contact with it. The result of this method of designing the cylinder or

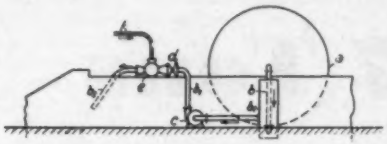


roller is that the paper web can be allowed to remain in contact with the surface of the same for a greater arc of the circumference. Hence the dehydrating action of the roller is more effective. Another advantage of this type of design is that dehydration of the paper web by suction may be combined with the action of a press roll against the surface of the paper web, this being accomplished by a second roll (p). Helmuth Banning, Dueren, Rheinland, Germany. German Patent No. 535,502.

◆ Digestion and Bleaching of Wood

Digestion and bleaching of wood or the like is accomplished simultaneously by means of elemental chlorine. The operation is carried out in a bleaching beater in a continuous process with the aid of a washing drum which dips into the trough and removes a regulatable proportion of the liquid contents. This liquid is then reintroduced into the trough by means of an ejector pump in which it is mixed at the same time with chlorine gas, so that a mixture of chlorine and the liquor is fed by the injector into the lower part of the trough of the beater.

The accompanying illustration shows the arrangement of the apparatus. The washing drum or cylinder (a) with a wire screen circumference rotates slowly on a shaft which is supported on bearings. Liquor is removed through the perforated drum into the pump (c) and



is re-introduced into the beater trough through the inlet pipe (b2). The liquor thus passes through the circulating pipes (b) and (b2). The injector is shown at (e) and a controlling valve at (d). The chlorine gas is fed through the connection (f). Chlorine is added to the beater in a regulated flow, so that not only does intimate admixture of the chlorine with the beater contents ensue, but also bubbles of the gas break through to the surface. The result is that there is no loss of chlorine gas and no odor from the beater. Verein fuer Chemische Industrie A.G., Frankfurt-am-Main, Germany. German Patent No. 532,148.

◆ Pulp or Half-Stuff Easily Dispersable in Water

Hygroscopic substances of neutral character are added to the wet stock if it is to be easily distributed in water to form a pulp and water mixture. These substances, which, for example, are glucose, invert sugar, wood sugar, as well as waste products obtained from the manufacture of cane sugar and beet sugar or dextrose, prevent the removal of water from the pulp and half-stuff. The sugars are added at some point in the dehydration of the pulp or half-stuff in such quantity that the proportion of sugar in the dry stock amounts to 0.1 per cent. Dr. Hans Wrede, Berlin-Dahlem, Germany. German Patent No. 537,335.

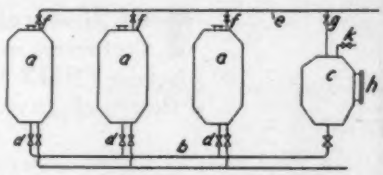
◆ Impregnation of Pinewood in Sulphite Digestion

The research was concerned with the effect of sulphite liquor of varying concentration, containing various bases and used for varying periods of time and at varying temperatures, on the impregnation of pinewood in making sulphite pulp. Penetration depends largely on the denseness of the wood, the content of rosins in the wood, etc. It was found that the impregnation of the liquor, containing the same proportion of sulphur dioxide (total), is best when magnesia is used as a base. It is least for lime as a base. Added substances to the liquor generally do not improve the absorption of the same; rather is the effect retarding in action. When time and temperature are constant, best results are obtained again with magnesia. Better penetration is however obtained with magnesia-containing liquors at 110 degrees C. than at 80 degrees C. Time has a greater effect on the penetration when the liquor contains lime than when it contains magnesia. W. Jakimanskij. Bumaschnaya Promischljennostj. 1931, no. 7.

◆ Shortening Time of Relieving Digesters

The time of relieving pulp digesters is shortened by vaporization over a surface of added liquor. As may be seen from the accompanying illustration, the pulp digesters (a) are connected by pipes (b) with the tank (c). Various valves (d) are located in this pipe system, which permits the flow of liquor to the tank (c) to be suitably regulated. The waste gas pipe (e) is connected with the digesters (a) through the valves (f), and with the tank (c) through the valves (d). The tank (c), which may be horizontal or vertical, has a cubic content somewhat larger than half the volume of a digester (a).

After the digestion has been finished in one of the digesters (a), its valve (d) is opened, so that the liquor flows through the pipe (b) into the tank (c). The tank (c) is closed air-tight on open-



ing the valve (d), so that the liquor under high pressure is not forced by the pressure out of the digester (a) to any extent and also out of the container (c) into the open. The passage of liquor ensues only in the measure, as space becomes free due to the compression of the air. Then the air is released from the container (c) through the valve (k) to such an extent, that the same level of liquid is reached both in the digester (a) and in the tank (c). If the valve (f) of the digester (a) and the valve of the tank (c) are opened, then the process of relieving the digester begins and the gas is released over an increased surface. If, for example, the surface of the liquor in the container (c) is twice as great as in the digester (a), then the relieving period is two-thirds as long as the usual time. Julius Perlis, German Patent No. 538,540.

◆ New Digestion Process

This process differs from all the common digestion processes in that it does not subject the pulpwood to the violent reactions that take place in the digester and whose purpose it is to isolate the cellulose from the wood, that is separate it from the lignocellulose and the like. It is claimed that all the common processes have the effect of destroying a part of the valuable cellulose in the wood. The new process depends on the use of a new solvent of the low boiling organic type for dissolving all of the impurities out of the wood, leaving only the cellulose behind. The process is carried out

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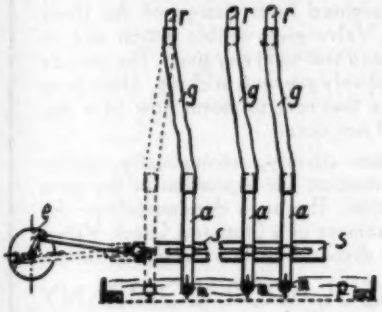
in the presence of contact agents at a temperature as low as 90 degrees C. The process has been carried out on pine, beech and fir woods under laboratory conditions. The yields are about the same as when using the sulphite process. Accurate details are not available. Wochenblatt fuer Papierfabrikation, 1932, pages 246-7.

◆ Making Colored Paper on the Paper Machine

This process is concerned with the manufacture of paper with colored design surface on the paper machine by means of tubes which dip into the unfelted paper stock, and these tubes are



caused to move back and forth in the stock, so that the paper stock is mixed with the coloring matter.

The apparatus, used for this purpose, consists of a number of angular feed tubes, three of which are shown in the diagram at (a). These are fastened to a board (s), which is moved by means of a cam wheel (e). The mouths of the tubes (m) dip into the paper stock (p). The coloring matters, etc., are fed through the pipes (r), while (g) are rubber tubes connecting the pipes (r) and the tubes (a). This arrangement allows a perfect mixing of the coloring matter, etc., and the paper stock. I. G. Farbenindustrie A.G., Frankfurt-am-Main, Germany. German Patent No. 533,197.

◆ Using Water Glass and Lye in Sizing Paper

A number of experiments were carried out on the addition of water glass or soda lye in the sizing of paper, containing 1.9 per cent ash, with the aid of the ordinary rosin size. When these chemicals were added, the proportion of rosin size was reduced from 4.4 per cent to 3.6 per cent. The same results were obtained with writing paper of better grade, containing approximately ten per cent ash. Savings were also effected in sizing ordinary paper. Proper control of the PH coefficient during the sizing process also results in a saving in paper makers' alum. The addition of water glass increases the ash content slightly in certain papers and gives many papers a tendency to warp. The strength of soft papers, which contain large proportions of mechanical wood pulp, is materially increased by the addition of sodium silicate to the size. The best that can be said about this practice is that it should be tested out in each case to see if the results will be more favorable or not. Chintschin. Bumaschnaya Promischlennost, volume 10, number 3, page 17.

◆ Studies on Black Liquor

The dry substance in black liquor obtained from the digestion of kraft pulp as well as of bleachable pulp, has after digestion about the same percentage composition, under the condition that the alkali of the white liquor is almost completely consumed. The theoretical quantity of carbon dioxide in the combustion gases from the burning of the black liquor is equal to 19 per cent on the addition of 150 kilograms of sodium sulphate; the actual quantity of the combustion gases per kilogram of the dry substance of the black liquor, burnt to a gas of ten per cent carbon dioxide content, is equal to 7350 liters (figured at zero degrees C. and 760 mm. pressure), and the total quantity of flue gas at ten per cent carbon dioxide content and from the combustion of an approximately 28 degree concentrated black liquor, corresponding to one kilogram of the dry substance, is equal to 19,500 liters at +300 degrees C. (760 mm. pressure). The theoretical quantity of black liquor per ton (English) of 90 per cent kraft or easy bleaching stock is equal to 1300 or 1900 kilograms of dry substance. About 1170 and 1730 kilograms, respectively, of substance enters the soda house per ton of black liquor in the manufacture of kraft pulp and easy bleaching pulp. The yields are 48 per cent for kraft pulp and 40 per cent for easy bleaching pulp. The concentration of the digestion liquor, the circulation of the liquor and the manner in which the digestion is carried out all affect the quantity of the black liquor as well as its composition. J. W. Bergman, Svensk Papp. Tidn., volume 34, page 254ff.

◆ Drying Paper Web and Felts

High temperatures are detrimental to the felt in drying it with hot air, but it is a fact that high temperatures do not occur in the woolen felt which is full of moisture when hot air is blown through it. It has been found that a temperature of only approximately 45 degrees C. is attained within the felt when the temperature of the hot air used is as much as 120 degrees C. Measurements made on the drums showed that at an air temperature of 100 degrees C. in the drum the dry air behind the felt after passing through it had a temperature of about 30 to 35 degrees C. and a moisture content of 97 to 98 per cent. Drying with hot air is preferable to drum drying. The life of the felt is prolonged by the former process. Der Papierfabrikant, 1932, 78-79.

◆ Decomposition of Unbleached Sulphite Pulp

A sample of the pulp, suspended in water, is treated with a known weight of chlorine water for one hour at a temperature of zero degrees C., and the chlorine consumption, grams of chlorine per hundred grams of pulp, is determined by titration of the liquid with tenth normal solution of sodium thiosulphate. The apparatus required is simple and greater accuracy is obtainable by this method than by any of the others. Rigid control of alkalinity, concentration of pulp, amount of chlorine, temperature, etc., is unnecessary and no special apparatus, such as is required for the determination of the Sieber number or the Roe chlorine number, is needed. The reaction is complete in thirty minutes at zero degrees C., while at 20 degrees C. the consumption of chlorine is greater, but under these conditions attack of the cellulosic matter probably occurs, as indicated by the viscosity values. H. Okada, Cellulosechemie, 1932, volume 13, pages 33-35.

◆ Refining Paper Stock

This apparatus, which is shown in the accompanying illustration, is used for the purpose of cleansing raw materials used for the manufacture of paper stock, and particularly for the removal of particles of sand and the like. The apparatus effectively removes lumps and knots as well. The apparatus is used in the place of the usual refining engine or knot and sand catcher.

The raw material is fed through a central tube (7) which is provided with a large flange (8). The material is thus

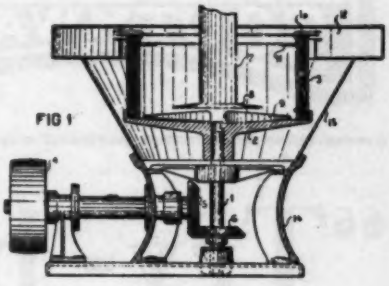


FIG 1

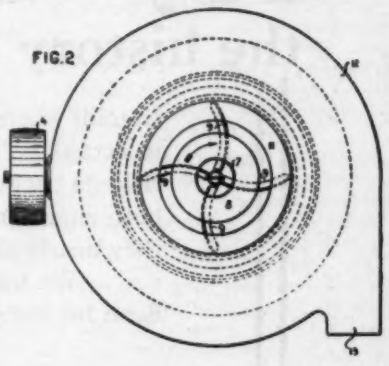


FIG.2

caused to rotate very rapidly on the bottom of the drum or basket of the centrifuge by means of the blades (9). The drum is fastened to the shaft (1) and is caused to rotate itself by means of the pulley (4) and the shaft with the gears (5) and (6).

The agitation of the raw material by means of the blades (9) causes the formation of cylindrical layer of the material, which pushes against the interior wall of the drum and has a thickness determined by the width of the flange

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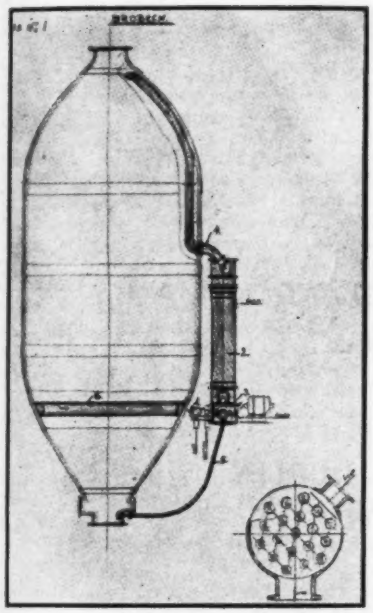
provided at the upper part of the wall (3) of the drum. According to the extent of the feed of stock to the machine, a projection of material of more or less magnitude forms above the ring (10) caused by the centrifugal force. Those parts of the stock, that is the impurities such as sand, knots and the like, of greater specific gravity, remains against the wall (3) of the drum, while constituents of greater specific gravity are retained by the ring (11). The result is that the centrifugal force removes the purified stock which flows over the ring (10) into the container (12). Hermanus Thomassen. French Patent No. 573,036.

◆ Indirect Sulphite Digestion With Forced Circulation

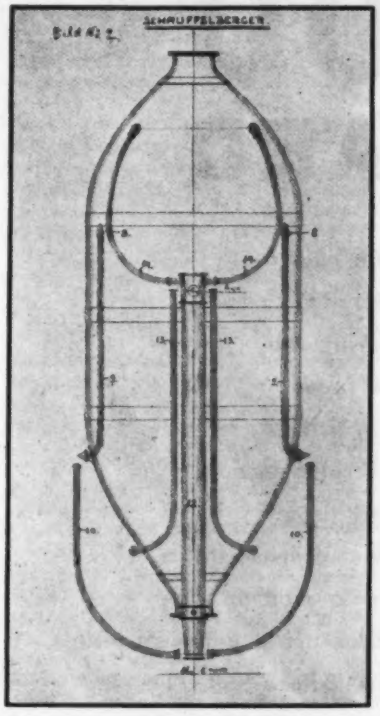
Two new systems are described. The first is shown in Fig. 1, the Brobeck system. The suction line to the heater (2) is shown at (1), the liquor being sucked through the heater by means of the pump (3). The top circulation pipe (4) leads from the heater to the digester and it rises within the digester up to the upper part of the neck of the same. The suction line (5) is carried into the lower conical part of the digester for the purpose of circulating the liquor. The pipe



(6) is perforated, so that liquor can be drawn into it from the upper part of the conical bottom of the digester.

Figure 2 shows the Schauffelberger system. The digestion liquor is sucked out of the upper part of the digester through the screen arrangements (8) and the liquor is then forced through the pipes (9) and (10) to the circulation pump (11) which pumps the liquor through the preheater (12). The heated liquor then passes through the pipes (13) and (14) into the digester.

Experiments have shown that in the first digester the total strength of the acid should not exceed four per cent, as when the acid content is greater, the losses are too large. After the digester has been filled with wood chips and liquor, the circulation pump is started operating and the steam is turned on. Steam of 2.5 atmospheres pressure at 140 degrees C. is used. A temperature of 105 degrees C. is generally attained within a period of four hours. The cir-



culation pump is allowed to run until the digestion is complete. A complete study has been made of the operation of this digester and a number of curves on the variation between the strength of the paper and digestion conditions are given. Dr. A. St. Klein. Zellstoff und Papier, 1932, pages 149 to 152.

◆ Theories of Paper Sizing

The theoretical side of paper sizing has been studied in the light of the Bewoid process. The membrane, electric charge, and drying process theories of sizing are criticized. Examination of the Bewoid process, the name given to the B. Wieger dispersoid process, however, sheds further light on the sizing problem. In this case, the particles of the size are uniform spheres half to two mu in size and form a dispersoid intermediate between a colloid and a suspension. They are unchanged by coagulation and show no gel formation and, therefore, cannot form a membrane round the fibers. A theory of mordanting by the aluminum sulphate has also been suggested, but the author considers that sodium takes part in a mordanting action, that part of the rosin is present as aluminate resinate, and that the dispersion consists of a solid solution of sodium resinate in rosin. The surface of the size particle therefore contains sodium and this is exchanged for aluminum from the adjacent aluminum hydroxide gel, thereby producing a strong mordant action and fixing the size on to the fibers which are already coated with aluminum hydroxide gel. B. Wieger, Zellstoff und Papier, 1932, volume 12, pages 15-18.

◆ Papermaking Inventions

Felt Cleaning Apparatus — A cleaning apparatus for papermakers' felts is the invention of Eugene H. Lansing, Waterford, N. Y., April 12, 1932. It includes spaced spray heads for reciprocation transverse the felt. A flexible hose serves the spray heads. Rigid conduits support the hose free of contact with the felt and these are connected for relative movement incident to the reciprocation of the spray heads.

Pressed Sheets from Liquid Pulp — A method of forming a pressed sheet from liquid pulp supported on a flat wire screen has been patented by John A. Wiener, the patent being assigned to Masonite Corporation, Laurel, Miss., April 12, 1932. The top of the pulp is covered with an impervious apron which moves in a vertical position; air is exhausted from beneath the wire screen, the pulp being squeezed between apron and screen to force out water.

Felt Paper From Bast Fibers—Pierre Drewsen, son of the late Dr. Viggo Drewsen, invented a method of treating flax, jute, manila and other fibrous substances by chemical and mechanical means to produce a roofing paper, and applied for a patent thereon which was granted March 22 (No. 1,350,791), and has been assigned to the Barrett Company. The raw fibers are subjected to mechanical and chemical disintegration in alkaline solution containing about 10 per cent by weight of alkali based on the dry weight of the fiber at a temperature of 100 deg. Cent. to remove incrustants. The procedure may be modified according to whether low or high absorptivity is desired in the final sheet, with reference to saturation with tar, asphalt or other saturants or waterproofing materials which may be used in the production of building, sheathing, roofing, mulching and other papers.

Pulpwood Stacker—John Stadler, Montreal, is the inventor of a pulpwood stacker and conveyor, capable of moving in a circular path about a fixed vertical axis. The stacker is equipped with a number of conveying elements. The stacking operation is performed by piling pulpwood upon these conveying elements and the connected stacking and auxiliary conveyors are combined into a single reclaiming conveyor. Patent 1,856,118, issued May 3, 1932.

Pulp Screen — In a patent issued to Edward J. Trimbey, Glens Falls, N. Y., May 3, 1931, a new method and apparatus for screening pulp is provided. It is a combination of a cylinder screen chamber, an inlet for the pulp and means therein for transforming the rectilinear motion of the incoming pulp into rotary motion. The pulp is introduced at the center of a rotating mass of pulp at the same speed and in the same direction so as to avoid agitation and foaming.

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police, with the
first information
leading to a
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Guaranteed Swift Brook Paper made in Saggart, Ireland

The COMMERCIAL OUTLOOK

New York, June 1, 1932.

A FURTHER contraction, in business generally and in business in paper specifically, has taken place, and paper manufacturers and distributors are wondering when the severe depression will end or what it will lead to. Activity in the paper industry is at a low ebb—to state the case mildly. Demand for practically all grades of paper is slow indeed; not only are buyers with very few exceptions confining their orders to bare needs, but it is very evident that consumers in general are not using anything like usual amounts of paper, so that the call for supplies is undergoing additional narrowing from just about every angle. With the summer approaching, the customary seasonal quietness which invariably affects paper business is commencing to be felt, thus adding to the pronounced dullness of the market.

From a technical standpoint there seems every reason to believe that the paper industry is in no worse condition than it has been for some time past. If anything, the statistical position is improving. Production by mills in various parts of the country is being appreciably curtailed; manufacturers have ceased trying to combat market difficulties brought about by the general industrial depression and are adjusting their output down to the volume of orders definitely in hand. Moreover, something of a steadier price tone exists. Very little change is developing in mill quotations; it appears that paper prices are in most instances well stabilized on levels which members of the trade believe represent the bottom, and there is no promiscuous cutting of prices in an effort to secure business. True enough, paper manufacturers are competing keenly for orders—there is great rivalry for such business as is to be obtained, but signs are that the average paper manufacturer or merchant is no longer sacrificing prices simply to land orders. A decidedly better sentiment prevails, which might be construed to mean the beginning of better things.

Comparatively, the paper industry as a whole is probably producing at a larger rate of its capacity than is perhaps any other manufacturing industry. This has been the case all during the period of depression. Newsprint mills are producing in the vicinity of 65 per cent of capacity; board mills at about 60 per cent, and other paper mills at about the same capacity. Contrasted with the steel mills at 25 per cent operation, textile mills at 50 per cent and less, and other industries at similarly low levels of production, the paper industry is managing to keep fairly occupied. However, this means little when consideration is given that most paper mills cannot operate profitably unless producing near to full capacity.

Figures compiled by the American Paper and Pulp Association show that paper production in the United States during the first quarter of 1932 ran only about 7 per cent below the output in the corresponding period last year. The total for mills reporting to the Association reached 1,240,711 net tons of paper and board during the first three months of the current year, against 1,336,626 tons in the similar time a year ago by identical mills. Production in January last amounted to 402,818 tons of all grades; in February, 401,277 tons, and in March, 436,616 tons. The rise in March as compared with the two previous months was mainly seasonal. The Association's statistics show, however, that the inventory position in nearly all the major grades of paper registered improvement over a year ago, with total stocks at mills on March 31 last of 258,207 tons constituting a 6 per cent decrease compared with 273,999 tons held at mills at the end of March last year. In other words, shipments from mills during the first quarter of this year, aggregating 1,245,542 tons, were in excess of the production during the same period, whereas last year in the similar time shipments of 1,333,873 tons were below the current production.

Production of newsprint in the United States in April amounted to 91,235 tons and shipments from mills were 94,296 tons, while Canadian output was 176,660 tons and shipments 186,443 tons, making a total production for the two countries of 267,895 tons and shipments of 280,739 tons. During April, 22,349 tons of newsprint were manufactured in Newfoundland and 890 tons in Mexico, so that the total North American production for the month reached 291,134 tons. The Canadian mills produced 80,846 tons less in the first four months of 1932 than in the same time last year, which was a decrease of 11 per cent. The output in the United States was 21,003 tons or 5 per cent under that of a year ago, while the Newfoundland production was 6,975 tons or 7 per cent less, and the Mexican output was 922 tons less, making a total North American decrease of 109,746 tons or 9 per cent. Stocks of newsprint paper at Canadian mills at the end of April totaled 53,904 tons, and at United States mills 35,417 tons, giving a combined total of 89,321 tons, compared with 102,165 tons on March 31 last.

Production of paperboard in the United States in March totaled 205,737 net tons, recording an appreciable increase over the 186,756 tons produced in the preceding month yet falling below the 226,011 tons manufactured in the same month of 1931, according to the U. S. Department of Commerce's monthly statistical summary of the board industry. Board output in the first quarter of this year amounted to 574,799 tons, or at 58.9 per cent of mills' capacity, compared with 643,487 tons or 67.6 per cent of mills' capacity produced in the corresponding period of last year, and 684,528 tons or at 70.7 per cent of capacity in the first quarter of 1930. Shipments of board during March were 202,749 tons, against 190,007 tons in the preceding month, while new orders booked by manufacturers were for 195,333 tons, contrasted with 188,734 tons in February last. Stocks of board at mills at the end of March totaled 79,926 tons, against 76,938 tons a month before. Unfilled orders held by manufacturers at the close of March called for a total of 35,173 tons of board, compared with 42,589 tons a month previously.

Few changes of a definite character and of importance are recorded in prices of paper. The contract basis on newsprint is well maintained, with no intimation of any contemplated change on the part of manufacturers. Book paper prices are inclined to be a bit wobbly, and it is no secret in the trade that some mills are shading quotations in certain instances. Kraft wrapping paper is fairly well stabilized although occasions come to light now and then when some little reduction from quoted market levels is made by manufacturers. Tissues are moderately steady in price, as are most lines of fancy cover papers. Writings are comparatively steady though some mills appear to be making a practice of putting out new lines of bonds and ledgers at markdowns in price. Boards are adhering to maintained price levels and it is said manufacturers are refusing flatly to allow concessions.

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◆ Fort Madison Plant to Reopen

The Fort Madison, Iowa, mill of the Hinde & Dauch Paper Co., was reopened on June 6, after having been idle since February, 1931. It is felt that the closing of the plant of the Carlyle Paper Co., Carlyle, Ill., may have been a deciding factor in the reopening of the Hinde & Dauch plant.

The Carlyle plant has been closed because of stream pollution suits for $100,000 brought against the company by the Izaak Walton League and the State of Illinois.

◆ THE FIRST importation of kraft paper from Finland, in the memory of customs officials, will result in an early investigation of conditions in this market abroad. The paper was imported at such a low delivered figure that the Import Committee of the American Paper Industry has filed notice of a suspicion of undervaluation.

"Eureka! EUREKA! *EUREKA!*

the love letters of Anthony to Cleopatra"

Contents of safety deposit box, recently unearthed in the shadow of the pyramids, prove to be the long lost and much sought after love letters of two most famous lovers in history. Further examination shows that paper on which they were written must have been made with Hamilton Felts.

As time goes on and more important discoveries of ancient documents are made, it is very reasonable to suppose that many of them will be found to have been written on paper made with Hamilton Felts.

As you know, Hamilton Felts are of very ancient manufacture. The first one was made extremely early in the Victorian Age, 1858 A. D. which, you will admit, is a long time ago.

During the seventy-five years which have come and gone since then, Shuler & Benninghofen have been gathering the ripened experience which expresses itself in the perfect Hamilton Felt so widely used in the paper making industry today.

The making of a felt *is* a matter of experience. There is no standard formula that will serve in all cases. It is experience, which in the course of the year, takes thousands of fleeces, no two of which are alike, and grades, cleans, cards, spins, weaves, and fulls them into the perfect felt which bears the name "Hamilton," a felt which makes better paper and in more than usual quantities.

To try one Hamilton Felt on one of your machines is to standardize on them for all your equipment. Seventy-five years of experience does make a difference.

SHULER & BENNINGHOFEN, Hamilton, Ohio

Miami Woolen Mills, Established 1858

Hamilton Felts

Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them.

Domestic RAW MATERIALS

◆ Papermaking Rags

Indicative of the changes taking place in papermaking rags as a direct result of the almost chaotic condition of the market is the statement made by the purchasing agent of one of the largest writing paper manufacturing organizations in the United States that his company is now consuming no old rags at all, since prices of new cotton and linen cuttings are so low it has been deemed advisable to use nothing but new rags. The company in question formerly was a large user of old white and blue cottons. This instance is cited as showing how the papermaking rag business is being more or less revolutionized during the present depression period. Other paper mills are revising their consumption of rags to a similar drastic degree; some are switching from grades they have been long accustomed to using to other grades; others are utilizing grades of rags which they never before consumed, and still others are combining old descriptions with rags which they have not heretofore purchased because of price reasons. The trend, it can be said, is toward the higher grades of rags, because papermaking rags of practically every quality are so cheap today that mills find it economical to use the better grades.

Demand for rags from paper manufacturers is restricted decidedly. There is business transpiring, of course, but it is mostly of light volume; mills are buying only when in actual want of supplies, and it is plainly evident they do not need anything like usual quantities of rags under prevailing conditions in the paper market. Prices are altogether in favor of those on the purchasing side of the trade; many rags are being bought at "unheard of" prices, at any rate at prices which have not been known in a great many years. Moreover, papermakers apparently feel there is nothing likely to happen to promote any appreciable advancement in rag costs in the near future, and consequently are absorbing supplies only as their requirements develop; in short, they are buying when having orders for paper in hand and show no disposition to stock up despite the attractively low prices prevailing. Dealers in turn are eager for business and are not permitting price to stand in the way of getting mill orders. In fact, price seems a secondary consideration in the scramble for such limited business as the present slim market affords.

There have been reports of sales of new fancy shirt cuttings and new No. 1 washables at such low prices as 1.25 cents a pound f.o.b. dealers' shipping points. No. 1 white shirt cuttings are reported available at 4.25 cents, and perhaps at less, at points of shipment, while new unbleached muslins are reported offered at 5.50 cents a pound, blue overall cuttings at 3.75 to 4 cents, light silesias at 3.75 to 4 cents, and bleached shoe rags at 3.75 cents. It is likely that sales are being made in some cases at even under these prices.

It is almost anybody's guess at what figures old white and blue cottons can be bought. Quotations of dealers range around 2.75 cents a pound for No. 1 repacked whites, 1.50 to 2 cents for No. 2 repacked whites, and 1.10 cents for repacked thirds and blues f.o.b. shipping points, but there is little doubt purchases can be effected at lower levels than these. Roofing rags have dropped fairly sharply in the Middle West while holding relatively steady in the East, with the two markets now on about an even basis. No. 1 roofing is bringing around 55 cents per hundred pounds f.o.b. New York, and No. 2 stock 40 to 45 cents. Foreign rags are just about entirely out of the picture; there is very little or no demand emanating from consuming quarters and few lots of any consequence being imported, with prices strictly nominal. It is the contention of importers that they cannot purchase rags abroad at low enough prices to enable them to sell to paper mills in the U. S. at prices in keeping with domestic rag costs and come out without suffering losses in handling the imported product.

Average quotations f.o.b. shipping points and ex dock New York, many of which should be considered nominal, follow:

NEW STOCK

	New York and Chicago
White shirt cuttings, No. 1	4.00-4.25
White shirt cuttings, No. 2	3.00-3.25
Fancy shirt cuttings	1.25-1.50
Washables, No. 1	1.25-1.50
Unbleached muslins	5.25-5.50
White lawns	3.00-3.25
Overall cuttings, blue	3.75-4.00
Black silesias	2.50-2.75
Canton flannels, bleached	4.50-4.75
Canton flannels, unbleached	4.00-4.25
Shoe cuttings, bleached	3.75-4.00
Shoe cuttings, unbleached	3.25-3.50
Light silesias	3.75-4.00
O. D. khaki cuttings	3.75-4.00
Mixed khaki cuttings	3.25-3.50
Corduroy cuttings	2.25-2.50
Cottonade cuttings	1.50-1.75
Linens, No. 1 white, foreign	6.00-6.50
Light prints, foreign	1.75-2.00

OLD STOCK

Whites, No. 1, repacked	2.50-3.00
Whites, No. 2, repacked	1.50-2.00
Whites, house soiled	1.25-1.50
Whites, street soiled	1.10-1.25
Thirds and blues, rough	.55- .65
Thirds and blues, repacked	1.00-1.25
Lace curtains	2.25-2.50
Black stockings	1.75-2.00
Cotton canvas, No. 1	2.50-2.75
White cotton batting	.85-1.00
Roofing, No. 1 (cloth strippings)	.55- .65
Roofing, No. 2	.40- .50
Linsey garments, foreign	.70- .75
Dark colored cottons, foreign	.55- .60
Blue linens, foreign	2.75-3.00
Gray linens, foreign	3.00-3.25
White linens, foreign	4.50-4.75
Light prints, extra foreign	1.25-1.50

◆ Rope and Bagging

Paper manufacturers are engaging in little purchasing of old rope and bagging, and the market for these raw materials is without feature and almost bare of important activity. The slight movement of supplies into consuming channels is of strict routine character only, and involves small parcels which mills find they have immediate need of. Nevertheless, prices are adhering to fairly steady levels, not so much because of demand sustaining market values but owing to limited amounts of both rope and bagging coming into evidence—imports having fallen away to a very low point and domestic collections running far under normal.

No. 1 old manila rope is selling at around 1.50 cents per pound at shipping points, with dealers in some instances shading this price, while foreign No. 1 old rope is on a price level of about 1.40 to 1.50 cents per pound ex dock American Atlantic ports. No. 1 scrap bagging is seldom fetching in excess of 75 cents per hundred pounds f.o.b. dealers' points, and is available at slightly cheaper prices in some quarters. Roofing bagging has moved a bit lower in price to about 35 to 40 cents a hundred for domestic packing, while old gunny bagging holds stationary in value though in little demand from paper mills.

F.o.b. shipping point and ex dock New York quotations follow:

Gunny, No. 1 domestic	.90-1.00
Gunny, No. 1 foreign	1.00-1.10
Scrap bagging, No. 1	.70- .80
Roofing bagging	.35- .40
Wool tares, heavy	1.00-1.15
Wool tares, light	1.00-1.10
Manila rope, No. 1 foreign	1.40-1.60
Manila rope, No. 1 domestic	1.50-1.75
Sisal strings	1.15-1.30
Mixed strings	.60- .70

◆ Old Paper

Sharp reductions in market prices of waste paper were registered during May, more especially in the Middle West, and the market condition—from the standpoint of those on the selling side of the trade—has gone from bad to worse. Consuming mills are buying in very sparse fashion; they are taking some supply, of course, but the orders placed seldom call for other than light tonnage, and the whole crux of the matter is that demand is insufficient to match the supply available even though there is no doubt that production and collection of old paper have been curtailed appreciably in most of the important centers of accumulation.

No. 1 mixed paper is down to the surprisingly low price level of $3 per ton or 15 cents a hundred pounds in the East f.o.b. shipping points, and prices of folded news have declined to 20-25 cents a hundred in eastern cities. Books and magazines have moved lower in value to 50-60 cents per hundred pounds for No. 1 heavy books and about 40 cents for crumpled book stock. Old kraft paper is off to 70 cents per hundred, and white news blanks to 1.15 to 1.25 cents a pound. Shavings are quotably easier, with No. 1 soft white reported available at 1.30 cents upwards a pound at ship-

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ANIMAL SIZING GLUE STOCK

LARGEST SPECIALISTS IN AMERICA ON
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FOR CYLINDER AND FOURDRINIER MACHINES

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SKANEATELES FALLS, N.Y.

ping points, and No. 1 hard white shavings at 1.50 cents to somewhat higher for extra quality packings.

The market situation is so unfavorable for sellers that collectors of waste paper in Chicago and other cities have organized strikes against gathering stock. This action, however, is having no perceptible influence in the prevailing dull market.

The following are quotations f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	1.50-1.80
Hard white shavings, No. 2	1.35-1.50
Soft white shavings	1.30-1.50
Colored shavings	.50- .60
Heavy book, No. 1	.50- .60
Crumpled book, No. 1	.40- .45
Ledger stock	.50- .80
Kraft, No. 1	.70- .80
New kraft cuttings	1.40-1.50
White blank news	1.15-1.25
Manilas, No. 1	.40- .50
Manilas, container	.25- .35
Folded news	.20- .30
Sulphite mill wrappings	.35- .40
Old corrugated boxes	.25- .30
New corrugated box cuttings	.35- .40
Mixed paper, No. 1	.15- .25
Common paper	.10- .15

◆ Pulpwood

A quiet market exists for pulpwood, with very little demand of consequence emanating from consuming quarters and with the movement of wood confined principally to lots against contracts or old orders. All reports tell of exceptionally light cuts during the past season, yet with consumers so inactive as buyers, the probable short supply wages scant influence. Prices are quotably unaltered and lack what might be called an established basis.

◆ Mechanical Pulp

While a fairly consistent movement of mechanical pulp supplies against contract commitments keeps up, there is very little open-market activity, consumers in general evidently getting along under present curtailed manufacturing schedules without having to resort to additional purchases of pulp. As would be expected under such circumstances, there is some pressure to sell groundwood. It is said that grinders in Canada especially are seeking orders and that they are not hesitating to grant price reductions to effect the removal of pulp stocks. In fact, while quotations on Canadian groundwood usually range around $17 or $18 a ton f.o.b. pulp mills, it is stated purchases are possible in some instances down around $15, and possibly even lower. Domestic producers are quoting in the vicinity of $21 or $22 per ton f.o.b. at grinding centers for prime groundwood for prompt shipment.

◆ Chemical Pulp

Aside from shipments on contracts, and occasional small-tonnage sales to consumers who apparently need supplies for filling-in purposes, there is little life in the domestic chemical wood pulp trade. The one exception is the rumored contract recently placed by a large Middle West paper mill with a new pulp mill in the Northwest which only lately came into production for a sizeable tonnage of bleached sulphite for delivery over the balance of this year at a price of 2.10 cents a pound delivered paper mill or the equivalent of approximately 1.85 cents ex dock Atlantic seaboard. Prices of domestic pulps are somewhat uncertain although quoted rates are holding fairly steadily to the levels maintained for some time. As inferred by the aforementioned sale, it is possible for consumers to effect purchases in some supply sources at prices below those regarded as representing market levels, however. In short, producers want business, and are inclined to grant price concessions. Bleached soda pulp is quoted at 2.50 cents delivered paper mills, while news grade unbleached sulphite is around 1.60 cents f.o.b. pulp plants.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	2.00-3.50
Easy bleaching sulphite	1.80-2.00
Unbleached sulphite, No. 1 strong (news grade)	1.50-1.75
Unbleached sulphite, No. 1 book	1.65-1.85
Soda pulp bleached (delivered)	2.25-2.50
Kraft	1.65-1.90
Screenings, refined	(Nominal)

◆ Chemicals

Demand for papermaking chemicals is slow, and the principal movement into consuming channels is against contracts arranged sometime ago. Casein quotations hold at 6 to 7 cents per pound for domestic, and 8 to 9 cents for the imported product. The 76 per cent solid caustic soda is 2.50 cents a pound at works, and 58 per cent light soda ash in jute bags is 1.15 to 1.38 cents per pound. Bleaching powder is unchanged at 1.75 to 2 cents a pound in drums at works.

Average quotations are as follows:

Alum, lump ammonia	3.25- 3.50
Alum, lump starch	3.50- 3.75
Blanc fixe, powdered	3.25- 3.50
Bleaching powder	1.75- 2.00
Brimstone (long ton, at mine)	18.00-20.00
Casein (duty paid)	6.00- 9.00
Caustic soda, solid, spot delivery	2.50- 2.55
China clay, domestic washed	7.00-11.00
China clay, foreign	11.00-13.00
Rosin	3.45- 3.95
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.15- 1.38
Starch, papermaker's in bags	2.44-
Talc (ton)	16.00-18.00

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◆ Organize for Forestry Development

The Forest Development Co., a $500,000 Delaware corporation, has been organized to protect and manage permanent forests in northern Idaho. The company is in control of about 175,000 acres of land formerly controlled by Potlatch Forests, Inc. The firm intends to do lumbering, silviculture, grazing, colonizing and reforestation.

C. L. Billings, manager of the Clearwater unit of Potlatch Forests, Inc., is president. Other officers and members are: C. O. Graue, Coeur d'Alene and A. A. Segersten, Potlatch, vice presidents; E. C. Rettig, secretary, and H. L. Torsen, treasurer; Laird Bell of Chicago and J. P. Weyerhaeuser, Jr., stockholders.

◆ Starches Used in Papermaking

A questionnaire has been sent out to members by one of the committees of T.A.P.P.I. on the use of starch in the sizing of paper. The questions have been put with a view of eliciting information concerning the types of starch generally employed and the ends sought to be attained through the addition of starch to the furnish in the beater.

In reference to the types of starch used, it is explained that information is wanted concerning the botanical origin of the substance and its physical properties as influenced by methods of manufacture for subsequent chemical treatment on processing. Starch may be of root, stem, or seed origin (potato, sago, arrowroot, tapioca, canna, corn, wheat or rice). It is sought to know if the starch is of high or low specific viscosity, raw, treated, precooked, chlorinated, oxidized, partially dextrinized, or esterfied, or a combination of the foregoing.

The technical reasons for selecting a particular type of starch are asked to be made known, as well as the forms in which starch is added to the beaters, at what period in the beating and in what sequence in respect to rosin size, alum and other components. It is also asked what the retention capacity of fibers and sheet of paper is as regards different types of starch.

◆ Sizing Emulsions

Sizing emulsions used in the paper and textile industries are discussed in a publication of Carbide and Carbon Chemicals Corporation, New York. Triethanolamine, a synthetic organic chemical, which is a colorless liquid capable of combining with waxes and stearins, and of forming soaps by combination with fatty acids, is employed in the manufacture of a paraffin wax emulsion for coating and waterproofing, as in the preparation of waxed paper. The formula for a paraffin wax emulsion calls for a mixture of paraffin wax, 88 lb.; stearic acid, 9 lb.; triethanolamine, 3 lb.; water, 300 lb. In the preparation of this emulsion the water, triethanolamine and stearic acid are mixed and heated to 100 deg. C., allowing the mixture to boil gently. The mixture is stirred carefully to form a smooth soap solution with a minimum of foam. The paraffin wax is heated in a separate vessel and brought to a temperature of 90 deg. C., when it is added immediately to the boiling soap solution and stirred vigorously while cooling. This forms a concentrated emulsion which can be thinned by the addition of water and used as a sizing for paper. The emulsion is said to be especially well adapted for the waxing of paperboard.

◆ H. J. RITTER, assistant secretary of Norma-Hoffman Bearings Corp., Stamford, Conn., has also been made sales manager of the organization. To his new duties he brings the experience of years as sales engineer and later as manager of the company's New York sales office.

CHEMICAL AND MECHANICAL PULP

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Kellner-Partington Paper Pulp Co. Ltd.
Sarpsborg, Norway—Edsvalla, Sweden
Hallein and Villach, Austria

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Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
Svanö Aktiebolag, Svanö, Sweden
Aktieselskabet Greaker Cellulosefabrik, Greaker Norway

KRAFT PULP

Nensjö Cellulosa A.—B., Sprängsviken, Sweden
Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
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CANADIAN KRAFT, LTD.

THREE RIVERS, CANADA

Sulphite Pulp—Paper and Board
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Seagull Bleached Soda Pulp
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"HAFSLUND BEAR"
Bleached Sulphite

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Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

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Extra Strong Kraft

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For EVERY GRADE of PULP & PAPER

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Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
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CAMDEN, MAINE

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Import and Export MARKETS

EXPORTS

Exports of paper and paper products from the United States registered a gain in point of value during March as compared with the preceding month, but were below the value of exports in the corresponding month last year, according to official figures compiled and issued by the U. S. Department of Commerce in Washington. Exports in March reached a total value of $1,486,131, against $1,448,278 in February this year and $2,090,714 in March a year ago. Exports during the first quarter of the current year totaled in value $4,261,944, compared with shipments of a value of $5,951,183 in the similar period of 1931.

Newsprint exports in March amounted to 964,055 pounds, valued at $28,902, against 1,242,305 pounds of a value of $44,550 in the same month last year. Shipments of uncoated book paper in March were valued at $49,000, contrasted with $109,963 in the similar month of 1931, while wrapping paper exports totaled in value $108,212 in March, against $156,632 in the same month a year ago. Exports of writing paper were of a value of $66,406 in March, against $120,308 a year ago, and tissue paper exportations were valued at $53,445, showing an increase over the $38,206 worth exported in March last year. Exports of over-issue newspapers continued to register a gain, reaching a value of $180,433 in March, against $108,454 in the same month last year.

Boxboard exports in March were valued at $28,935, compared with $141,431 last year, and other paperboard shipments were of a value of $78,612, against $108,780 a year ago. Exports of paper bags were valued at $48,716 in March, contrasted with $99,125 in 1931, and of paper boxes and cartons, $63,356, against $72,683 a year ago in the same month.

IMPORTS

◆ Wood Pulp

A duty on imported wood pulp seems out of the way, since the new tax bill is well advanced in the Senate and the tariff items passed over without the inclusion of pulp, but domestic pulp interests now are pressing hard for the measure to equalize costs of products imported into the United States from those countries which have gone off the gold standard. Should the latter be enacted, the result would be the equivalent of imposing an import duty on wood pulp.

The market for imported pulp is quiet to an extreme. There is some little buying but it is of strict routine character and scope, and has scant influence on the market situation. There is every indication that a large majority of paper manufacturers have all the pulp they need under prevailing circumstances, and in some cases more than ample with mill operations so appreciably curtailed, nor is there much disposition manifested to enter additional commitments covering forward shipments of pulp from abroad. The possibility of a tariff led to some buying in excess of known needs, while imports during the first few months of this year were exceptionally heavy, so that it is likely stocks in this country now are somewhat above normal.

Despite the present restricted demand, it is the belief of those within the trade that the technical position of the market is growing stronger. The strike in the Swedish pulp mills continues, which means that production there has ceased, and every day that goes by is the equivalent of a considerable tonnage of pulp failing to come onto the market. Whether or not world consumption is on a par with current production, with the Swedish output eliminated, is questioned, but there is no doubt the loss of the large Swedish production is a factor beneficial to the market. Apparently, other manufacturers in Europe appreciate this as they are naming steady prices and seem unwilling to sell at further reductions.

In fact, notwithstanding the quiet condition of the market, prices are holding quite stationary. The basis quoted on prime bleached sulphite is 2.10 cents a pound ex dock New York or other American Atlantic ports, with quotations ranging well above this level on special mill brands. Prime strong unbleached sulphite is quoted in most cases at 1.60 cents and slightly higher for extra qualities, though it is reported some supply is available at a dollar or two per ton under the 1.60 cents price. Prime easy bleaching sulphite is around 1.80 cents ex dock, while prime kraft pulp is on a quotatable level of 1.50 to 1.60 cents per pound. Imported groundwood is $19 to $20 per short ton ex dock Atlantic seaboard for either dry or moist pulp.

Imports of pulp into the United States were smaller during March than in the several previous months. Total importations of chemical pulps were 80,000 long tons, valued at $3,233,515, in March, according to official U. S. Department of Commerce statistics, compared with 153,546 tons of a value of $5,971,780 in the preceding month, 173,229 tons of a value of $6,508,692 in January this year, and 72,946 tons of a value of $3,952,466 in March, 1931. Thus, imports during the first quarter of the current year totaled 406,775 long tons of chemical pulp, or a monthly average of 135,591 tons, contrasted with a total of 323,676 tons or a monthly average of 107,892 tons in the last year.

Groundwood imports in March amounted to 10,044 long tons, valued at $231,491, against 17,078 tons of a value of $332,627 in the preceding month, and 13,082 tons of a value of $304,962 in the same month a year ago.

Current market quotations ex dock New York, and receipts at the port of New York during May, 1932, these data being taken from manifests of steamers reaching that port last month, follow:

Bleached sulphite, No. 1	2.00- 3.50
Unbleached sulphite, strong No. 1	1.50- 1.75
Unbleached sulphite, No. 2	1.40- 1.50
Easy bleaching sulphite	1.75- 2.00
Mitscherlich, unbleached, genuine	1.85- 2.00
Mitscherlich, unbleached, ordinary	1.55- 1.75
Kraft, standard Swedish	1.50- 1.75
Groundwood, per ton (dry)	19.00-20.00

Lagerloef Trading Co., 1,110 bls. from Hango and 3,810 Helsingfors; Guaranty Trust Co., 254 bls. from Gothenburg; E. J. Keller Co., 1,366 bls. from Hamburg; Castle & Overton, 5,550 bls. from Hamburg, 5,455 Hango, 2,595 Helsingfors and 1,975 Rotterdam; W. Van Doorn, 1,500 bls. from Rotterdam; M. Gottesman & Co., 9,600 bls. from Sibenik and 750 Rotterdam; Bankers Trust Co., 3,240 bls. from Stockholm and 1,800 Gothenburg; New York Trust Co., 750 bls. from Tallim Reval and 500 Hamburg; Johaneson, Wales & Sparre, 250 bls. from Gothenburg; Price & Pierce, 250 bls. from Gothenburg; Brown Bros. & Co., 168 bls. from Hamburg and 1,000 Oslo; J. Andersen & Co., 375 bls. from Gothenburg and 1,542 Oslo; Atterbury Bros., 330 bls. from Helsingfors; Irving Trust Co., 1,600 bls. from Oslo and 375 Bremen; Chemical Bank, 300 bls. from Oslo; Synthetic Nitrogen Products Co., 700 bls. from Rotterdam; E. M. Sergeant Co., 450 bls. from Oslo; Order, 8,851 bls. from Hango and 997 Hamburg.

◆ Paper Stock

Imports of papermaking rags into the United States in March last totaled 7,396,424 pounds of a value of $96,648, compared with 7,692,561 pounds of a value of $115,672 in the preceding month, while imports of other paper stock amounted to 6,407,290 pounds of a declared value of $62,510, against 6,162,826 pounds of a value of $69,103 in the month before, according to official figures compiled by the U. S. Department of Commerce.

Importations of paper stock continued on a low level during May, judging from receipts through the port of New York. Arrivals of papermaking materials of all kinds at that port last month, these data being taken from manifests of steamers

FARREL-BIRMINGHAM
COMPANY INC.

40 State St., Ansonia, Conn.

PAPER MACHINERY

CALENDERS: Board
CALENDERS: Paper
CALIPERS: Roll
GRINDING MACHINES: Roll
PRESSES: Hydraulic
Calender Roll Recovering
Pulp Dehydrating
ROLLS: Chilled Iron, Dry Sand, Gray Iron, Alloy Iron, Steel
For: Calender Stacks
Board Calenders
Super-Calenders
Glassine Calenders
Friction Rolls
Breaker Rolls
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Plater Rolls
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Miscellaneous Special Purposes

TRANSMISSION MACHINERY
Gears, Cut: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)
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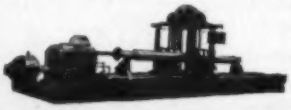
See PAPER AND PULP MILL CATALOG or LOCKWOOD'S DIRECTORY — 1932

Farrel Two-Wheel Roll Grinders embody unique features of design which make possible extremely close limits of precision, high quality of finish and at the same time promote efficiency of grinding and reduce maintenance costs. List of installations on request, with prices and specifications.



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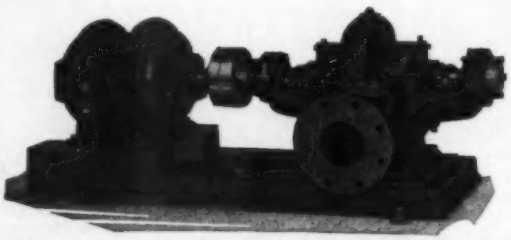

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Higher Operating Efficiencies,
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HAND POWER *and* **ELECTRIC**
Floor or Cage Controlled

We specialize in cranes up to 10 tons capacity and can offer quick shipments

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1724 North 10th St., Reading, Pa.

reaching New York during the month and therefore unofficial, were as follows:

Old Rope—William Steck & Co., 48 coils; Banca Commerciale Italiana Trust Co., 225 bls.; National City Bank, 73 coils; E. J. Keller Co., 110 coils; Order, 289 coils and 42 bls.

Old Bagging—Bush Service Corp., 863 bls.; Van Oppen & Co., 142 bls.; Katzenstein & Keene, 241 bls.; Castle & Overton, 240 bls.; Barrett Co., 72 bls.; Bank of New York & Trust Co., 49 bls.; E. J. Keller Co., 304 bls.; Order, 10 bls.

Rags—D. C. Andrews & Co., 87 bls.; Van Oppen & Co., 65 bls.; Katzenstein & Keene, 337 bls.; Fritz Stern, 67 bls.; Armstrong Cork Co., 412 bls.; James Rosenberg, 43 bls.; Barrett Co., 82 bls.; Darmstadt, Scott & Courtney, 64 bls.; S. Birkenstein & Sons, 148 bls.; J. Cohen & Son, 28 bls.; C. Nelson, 13 bls.; Amtorg Trading Co., 1,022 bls.; William Steck & Co., 24 bls.; E. J. Keller Co., 335 bls.; J. Reiss & Co., 10 bls.; Victor Galaup, Inc., 44 bls.; National City Bank, 246 bls.; Bank of New York & Trust Co., 90 bls.; Continental Bank & Trust Co., 54 bls.; Order, 168 bls.

Miscellaneous Paper Stock—Chase National Bank, 137 bls.; Bank of New York & Trust Co., 97 bls.; R. F. Downing & Co., 66 bls.; Amtorg Trading Co., 1,047 bls.

◆ Paper

Imports of paper into the United States in March last amounted in value to $8,181,140, showing an increase over the imports valued at $6,900,617 in the preceding month but a decline from the $10,732,441 worth imported in the similar month of 1931, according to official figures issued by the U. S. Department of Commerce in Washington. Imports during the first quarter of this year totaled in value $24,126,827, contrasted with $31,523,527 in the corresponding time a year ago.

Paper imports continued on a comparatively low level during May, taking arrivals at the port of New York as a criterion. Receipts of all kinds of paper at that port last month, these data being taken from manifests of vessels reaching New York during May and therefore unofficial, were as follows:

Printing—C. Steiner, 29 cs. from Bremen; Perkins-Goodwin Co., 119 reels from Bremen and 887 reels Hamburg; Walker Goulard Plehn Co., 635 reels from Bremen and 4 bls. Rotterdam; Keuffel & Esser Co., 92 rolls and 5 cs. from Hamburg and 4 cs. Rotterdam; Bank of Montreal, 3,301 rolls from Corner Brook; E. Dietzgen & Co., 44 cs. from Hamburg and 87 cs. Rotterdam; Martin & Bechtold, 8 cs. from Hamburg; W. H. Bell, 9,251 rolls from Liverpool, N.S.; J. Henschel & Co., 14 cs. from Hamburg; Baldwin Paper Co., 93 reels from Hamburg; Chase National Bank, 77 bls. from Gothenburg; Parsons & Whittemore, 200 reels from Stockholm; Lunham & Reeve, 142 reels from Helsingfors and 232 reels Hango; Jay Madden Corp., 66 reels and 41 bls. from Helsingfors; C. A. Redden, 11 reels from London; Steiner Paper Corp., 23 cs. from Rotterdam; P. Puttmann, 34 cs. from Antwerp; Order, 2,359 reels from Hango, 1,666 reels and 4 cs. Bremen, 978 reels Oslo, 433 rolls Norrkoping, and 1,783 rolls at Hamburg.

Wrapping—Borden & Riley Paper Co., 11 cs. from Hamburg; C. Steiner, 8 cs. from Hamburg; Van Oppen & Co., 27 cs. from Genoa; Borregaard Co., 408 reels and 161 bls. from Gothenburg; American Express Co., 40 bls. from Genoa; Order, 21 bls. from Hamburg.

Cigarette—Champagne Paper Corp., 465 cs. from Havre; American Tobacco Co., 480 cs. from Havre; Standard Products Corp., 418 cs. from Havre and 29 cs. Southampton; P. J. Schweitzer, Inc., 2 cs. from Havre and 21 cs. Marseilles; M. Spiegel & Sons, 16 cs. from Hamburg; Order, 16 cs. from Genoa.

Filter—H. Reeve Angel & Co., 129 cs. from Southampton and 8 cs. London; Gerhard & Hey, 15 bls. from Southampton; E. Fougera & Co., 72 cs. from Southampton; A. Giese & Son, 35 bls. from Southampton; Order, 33 bls. from Marseilles.

Drawing—C. H. Boulin, 5 cs. from Havre; Keuffel & Esser Co., 84 cs. from Hamburg; Favor, Ruhl & Co., 7 cs. from London.

Tissue—F. B. Vandergrift & Co., 15 cs. from Liverpool; W. J. Byrnes & Co., 5 cs. from Southampton; Wood Niebuhr, 9 cs. from Hamburg.

Photo—P. C. Zuhlke, 23 cs. from Bremen; Globe Shipping Co., 232 cs. from Bremen; Gevaert Co. of America, 205 cs. from Antwerp; American Express Co., 17 cs. from Hamburg; J. J. Gavin & Co., 5 cs. from Southampton; Phoenix Shipping Co., 31 cs. from Hamburg.

Hanging—Bendix Paper Co., 8 cs. from Hamburg; Guaranty Trust Co., 23 cs. from Hamburg; International Mercantile Marine Co., 2 cs. from Southampton; Bush Service Corp., 2 bls. from Hamburg; C. A. Haynes & Co., 11 bls. from London.

Cover—Globe Shipping Co., 250 cs. from Bremen and 19 cs. Hamburg; North German Lloyd, 228 cs. from Bremen; Hensel, Bruckman & Lorbacher, 29 cs. from Hamburg; Taub, Hummel & Schnall, 18 cs. from Hamburg; Rohner, Gehrig & Co., 5 cs. from Hamburg; Winter, Wolff & Co., 167 cs. from Rotterdam.

Board—Henry Fuchs & Son, 2 bls. from Gothenburg; Lagerloef Trading Co,, 370 bls. from Hango, 150 bls. Hamburg and 270 bls. Helsingfors; S. Stern, 6 cs. from Bremen; Fibre Case & Novelty Co., 20 bls. from Gothenburg; R. Reiner, 13 cs. from Bremen; G. M. Thurnauer, 8 cs. from Antwerp.

Miscellaneous — Keller-Dorian Paper Co., 10 cs. from Havre; Japan Import Export Commission Co., 12 cs. from Kobe; Lewis & Conger, 6 cs. from Havre; American-Hawaiian Steamship Co., 4 cs. from Havre; Hensel, Bruckman & Lorbacher, 12 cs. from Bremen and 3 cs. Havre; International Acceptance Bank, 14 cs. from Bremen; S. Gilbert, 2 cs. from Bremen; Happel & McAvoy, 5 cs. from Hamburg; Irving Trust Co., 4 cs. from Kobe; Whiting-Patterson Co., 9 bls. from Southampton; F. L. Kraemer & Co., 12 cs. from Bremen; Hurley Johnson & Co., 4 bls. from Liverpool; B. F. Drakenfeld & Co., 4 cs. from Liverpool; Japan Paper Co., 2 cs. from Rotterdam, 5 cs. London, 76 cs. Kobe, and 18 cs. Genoa; C. Brueing, 14 cs. from Rotterdam; F. Murray Hill, Inc., 7 cs. from Hamburg; Corn Exchange Bank, 26 cs. from Osaka; J. Romer, 7 cs. from Osaka; C. L. Voorhees, 7 cs. from Yokohama; E. Dietzgen & Co., 156 cs. from Hamburg; Heemsoth & Basse, 4 cs. from Bremen; International Forwarding Co., 19 cs. from Antwerp; Atlantic Forwarding Co., 4 rolls and 10 cs. from Hamburg.

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◆ Gilbert E. Ryder

Gilbert E. Ryder, vice-president of The Superheater Co., New York and Chicago, passed away suddenly May 17, at the age of 52 years.

Mr. Ryder had been associated with the Superheater Company since 1911 and had been vice-president since 1921. He was well known in railroad circles for his articles and speeches on fuel conservation and increase in power of locomotives through the use of superheated steam. The sale of his company's equipment for stationary power plants was started under his direction. Mr. Ryder was associate editor of the Railway Review prior to joining the Superheater organization.

◆ Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 57434—Cardboard in rolls. Brussels, Belgium. Purchase desired.

No. 57437—Paper towels, toilet paper and writing paper. Cristobal, Panama. Agency desired.

No. 57436—Newsprint paper. Palermo, Italy. Purchase desired.

No. 57429—Roofing paper-making machinery. Havana, Cuba. Purchase desired.

No. 57636—Cellulose sheeting, transparent, and wrapping papers for candy trade. Montreal, Canada. Agency desired.

No. 57637—Core board, 1,000 square feet in sizes 10 by 4 feet. Madras, India. Purchase desired.

No. 57636—Stay paper, colored, for set-up boxes. Montreal, Canada. Agcy. desired.

No. 57670—Bond paper, wrapping paper, paper bags, bags for hats, blotters, white envelopes, tissue paper, cardboard, safety paper, ledger paper, onion skin paper and envelopes, and kraft envelopes. San Juan, Puerto Rico. Agency desired.

No. 57696—Milk bottle caps. Cartagena, Colombia. Purchase desired.

No. 57772—Corrugated boxes and paper in rolls. Montreal, Canada. Purchase desired.

No. 57668—Printing paper (bond), and wrapping paper. San Juan, Puerto Rico. Sole agency desired.

No. 57661—Wrapping paper. Guayaquil, Ecuador. Agency desired.

No. 57814—Cigarette paper. Delhi, India. Purchase desired.

No. 57794—Fillers for egg crates. Edmonton, Canada. Purchase desired.

No. 57839—Graph paper, padded or in bulk, and other blank forms for management control studies. Milan, Italy. Agency desired.

No. 57881—Insulating board. Hamburg, Germany. Agency desired.

No. 57790—Overissue newspapers. Karachi, India. Purchase desired.

No. 57838—Overissue newspapers. Bombay, India. Purchase and agency desired.

No. 57799—Wall paper. Vienna, Austria. Agency desired.

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◆ AT A DIRECTORS' meeting held in the office of the Downingtown Mfg. Co., Downingtown, Pa., May 25, the following officers were elected: Albert H. Standley, president; Charles L. Ellis, vice-president and manager of sales; Ellis Y. Brown, Jr., vice-president and secretary-treasurer; Jacob Edge, vice-president and assistant sales manager. These officers and Thos. W. Downing and I. P. Tutton constitute the board of directors.

◆ THE SMITH & WINCHESTER Mfg. Co., South Windham, Conn., recently put into successful operation at the Hammond Bag & Paper Co., Wellsburg, W. Va., a full automatic compensating device for their tubers. It is an entirely automatic compensator for use where printing is done on rolls and the paper is then rolled up before being put through the tuber machines. It replaces all old hand-operated compensating devices which have proved extremely unsatisfactory at high speeds.

FITCHBURG DUCK MILLS

ESTABLISHED 1844

414 Duck Mill Road, FITCHBURG, MASS.

Manufacturers of

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CANVAS DRYER FELTS

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Fine Faced "English Woven" Felts for Fine Papers in Three, Four, Five and Six Ply
60 Inches to 288 Inches in Width.

ABSOLUTELY NO FELT MARKS IN PAPER

TRIUNE Three Ply Felts for extra long service and large production

THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

Made by

DRAPER BROTHERS COMPANY

CANTON, MASS.

Woolen Manufacturers Since 1856

REPRESENTATIVES

L. H. BREYFOGLE, Kalamazoo, Mich. INTERNATIONAL TRADING CO., Philadelphia, Pa.

PACIFIC SALES COMPANY, Security Bldg., Portland, Ore.

CURRENT QUOTATIONS

New Papers

Writing—	
White rag	12–40
White sulphite	5–30
Colored rag	11–40
Colored sulphite	5–30
Ledger—	
White rag	12–40
White sulphite	6–30
Colored sulphite	6–30
Colored rag	11–40
Bond—	
White rag	12–40
White sulphite	5–30
Colored sulphite	5–30
Colored rag	11–40
Book—	
No. 1 S. & S. C.	4.75– 7.50
Machine finished	4.00– 6.00
English finish	4.00– 6.00
Coated and enameled	6.25– 9.00
Lithograph, M. F.	6.50–11.00
Newsprint—	
Rolls, contract, per ton, delivered New York	53.00–
Rolls, transient, per ton, delivered New York	53.00–
Sheets, per ton, delivered New York	58.00–
Sideruns, per ton, delivered New York	38.00–42.00
Cover stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.65– .70
No. 2 white, 40x36	.55– .65
No. 1 manila, 24x36	.55– .65
Kraft	.65– .70
Wrapping—	
No. 1 kraft	4.25– 5.00
No. 2 kraft	3.25– 3.50
Southern kraft	3.25– 3.50
Boards—	New York and Chicago
News	24.00–26.00
Straw	32.00–35.00
Plain chip	24.00–26.00
White coated chip	35.00–40.00
Manila coated chip	30.00–35.00
Binders' board	55.00–60.00

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◆ Paperboard Industries Ass'n Meets at French Lick

The May meetings of the Paperboard Industries Association were held at the French Lick Springs Hotel, French Lick, Ind., May 18 and 19. Group meetings of the different groups preceded the general session which took place on the morning of the 19th.

It was clearly the sentiment of those attending the meetings that the situation facing the industry is beyond the control of any individual or any group of manufacturers, and that these difficulties can be solved only through cooperative effort on the part of all factors in the industry. The possibilities for betterment of these conditions were very thoroughly discussed, and plans are under way looking to improvement.

PACIFIC COAST

Washington

◆ Prize Suggestions

Employees of the Crown Willamette Paper Co. continue to respond very well to the firm's "suggestion box" and each week from six to eight men receive extra compensation on their pay checks. Prizes range from $2 to $5 according to the value of suggestions.

Among the suggestions accorded prizes the past month are: That sheet iron be installed on the tiering machinery at the bag warehouse to reduce damage to paper when it is dumped on the platform; to pipe color to No. 4 machine beater to reduce loss and save color; to lengthen bearings on the clamshell bucket to reduce wear and allow the bucket to close more tightly reducing sulphur spillage; installation of guard around pulley for No. 30 beater to keep water off the belt and avoid a shutdown; and to instal mirrors at the chipper room so man on No. 2 chipper can see outside conveyor and feed the wood onto inside conveyor more evenly.

◆ Lumber Company Bondholders File New Complaint

The Long-Bell Lumber Company, in a suit in equity at Kansas City, Mo., brought by two bondholders who sought receivership for the company, filed a motion asking that the plaintiffs furnish more definite facts and allegations than were included in their amended bill of complaint. Federal Judge Merrill E. Otis presided and the case was taken under advisement.

The amended bill of complaint was filed by the bondholders after Judge Otis had stated in a memorandum that a cause of action had not been shown in the original and had permitted filing of a new complaint.

The bondholders' committee of the Long-Bell company, at a meeting in Chicago May 29, reported approximately 70 per cent of the bonds or about $14,091,100.00 have been deposited with the company. In connection with this they issued the statement that: "We know of no means of providing the necessary cash to continue the company as a going concern except through the present creditor banks. Without new funds, the company's cash will soon be exhausted which will result in rapidly accumulating liabilities for the payment of taxes, insurance and other unavoidable charges to protect the mortgaged."

◆ PULP AND paper mills are one of the principal sources of income at Vancouver, according to a recent survey made by E. S. Lindley, secretary-manager of the Vancouver Chamber of Commerce to answer the general statement in that locality that "there is no business." The survey which shows a payroll of about $5,000,000 yearly, lists only the largest industrial plants. Among these, the Crown Willamette Paper Mills rank first with approximately 1,000 on the staff. The Vancouver Plywood Co. uses 350 employees, the Columbia River Paper Mills 300 and the Union Bag & Paper Corp. about 35.

◆ THE WEST Coast Lumbermen's Association, at a meeting of stockholders at Tacoma, May 31, has decided to continue to function if 80 per cent of the mills join before September 1. The meeting was called at the recommendation of the board of trustees which at a meeting in Tacoma, May 17, resolved to terminate association services June 1 because of the lack of support from members. The association includes in its membership several coast mills with pulp and paper mill subsidiaries.

Oregon

◆ Seek Legislation for Power Projects

Representative Hawley of Oregon and Representative Hill of Washington stressed the importance of legislation to permit work to begin on the $185,000,000 proposed power irrigation project for the Columbia river basin before one house committee recently while the project for development of Pacific Northwest rivers and harbors at a cost of $1,250,000 was tentatively approved by another committee.

Representative Hill pointed out that development of the Columbia basin project would reclaim some 1,200,000 acres of land and would provide nearly 2,100,000 installed horsepower of cheap electric energy. The principal development in this plan is the dam at Grand Coulee.

◆ FIRE of undetermined origin completely destroyed all stock, fixtures and the interior of the two-story brick building of the Federal Paper & Board Mills, Portland, recently. Goldberg Brothers, owners of the mills and property, announce that the building will be rebuilt as soon as insurance arrangements are completed.

◆ Timber in Northwest Deteriorating

Over-ripe timber in the Cascade mountains is receiving the serious consideration of lumbermen in the Pacific Northwest, particularly because of the present condition of the lumber market. Trees from 300 to 400 feet high and 4 to 10 feet in diameter are deteriorating and in a few years will have no value as lumber.

Timbermen are beginning to revise

A VALVE FOR EVERY INSTALLATION

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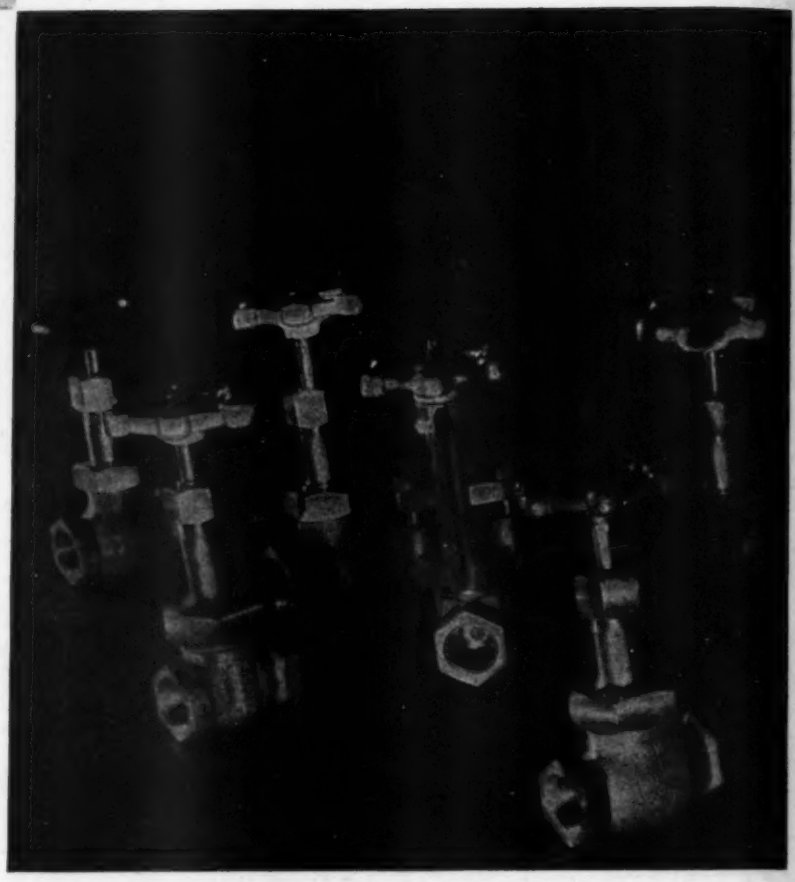

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their old estimates of timber in the mountains, setting aside the earlier opinion that the Cascades would offer timber for sawmill operations for 50 years yet.

From the Scio, Oregon, district millions of feet of saw timber and quantities of white fir have been consumed by the Lebanon paper mill at Lebanon in the past few years.

◆ EMPLOYEES of the Oregon Pulp & Paper Co. at Salem, took their fourth wage cut in the past 18 months June 1 when a reduction of 10 per cent was made.

◆ AN OBSERVATION trip through large business offices and manufacturing plants was made recently by students of chemistry and journalism of Albany college. The Crown Willamette Paper mill, the Oregon City Woolen mills, Portland Gas & Coke Company and the Morning Oregonian were surveyed, particular attention being paid the paper mill because of its interest for both chemistry and journalism students.

◆ W. A. KELLY, vice president and general manager of the Hawley Pulp & Paper Co. of Oregon City the past four years, has retired to devote his time to personal affairs and travel. He plans to maintain an active interest in the firm, however, and to retain his financial interest. A successor has not yet been named.

◆ GLENN PARR, a chemist who has been experimenting in extraction of oil from white cedar refuse near Medford for several years, has discovered an effective method of extracting the oil which brings several times the money that sawdust and refuse do. About 24 gallons of oil are being extracted daily with an ordinary size retort.

California

◆ Crown-Zellerbach May Reduce Stock Value

Crown-Zellerbach Co. is considering a possible reduction in stated value of common stock with consequent transfer to capital surplus of the amount of this reduction. However, it is expected that the write-down will not be to $1, as customary, but to a point midway between.

Stated value of the common stock as of April 30 was $22,735,776 or $12.85 a share. Action will not be taken until the New York Stock Exchange sends through information on ramifications in the adjustment of capital in line with the action. However, holders of voting trust certificates probably will be asked to ratify the action at the annual August meeting.

◆ GEORGE L. HURST, consulting mechanical engineer of San Francisco, is now handling the sale of the Farrel-Sykes line of gears, speed reducers, gear drives and gear cutting machines in the San Francisco territory. His office is at 785 Market street.

Chemipulp Process Penetration

There is no doubt in the past, but what over 90% of all the troubles experienced in the endeavor to produce a high grade, uniform sulphite pulp by the use of cold acid, can be laid to poor PENETRATION. These troubles are overcome by the use of hot acid. Actual tests under identical conditions have proved that the PENETRATION of bisulphite cooking acid at 75°C is five times the PENETRATION of the same acid at 25°C.

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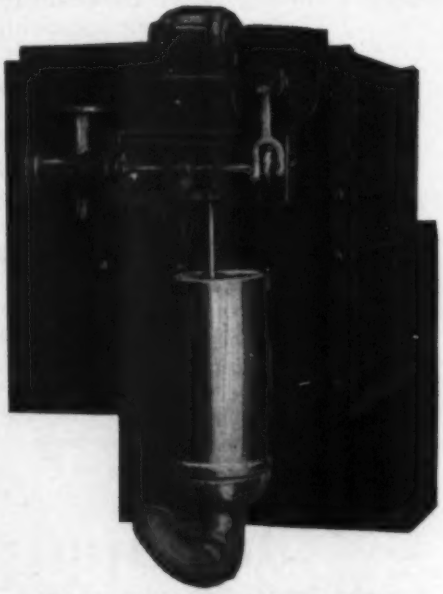

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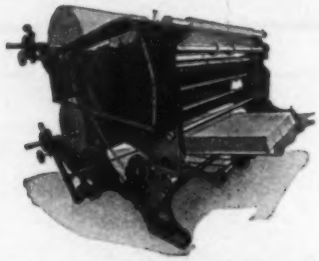

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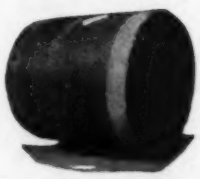

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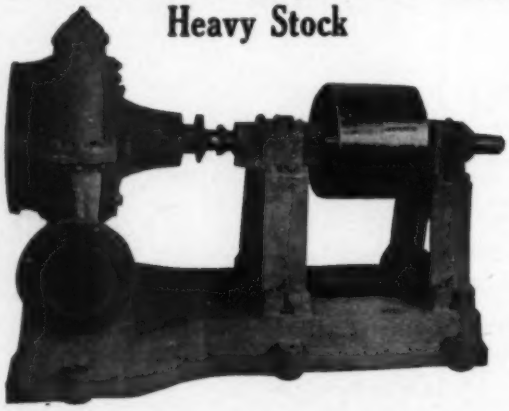

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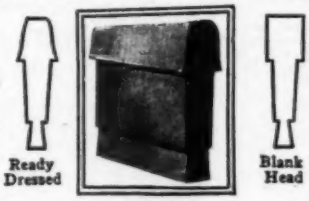

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Goulds Pumps, Inc.
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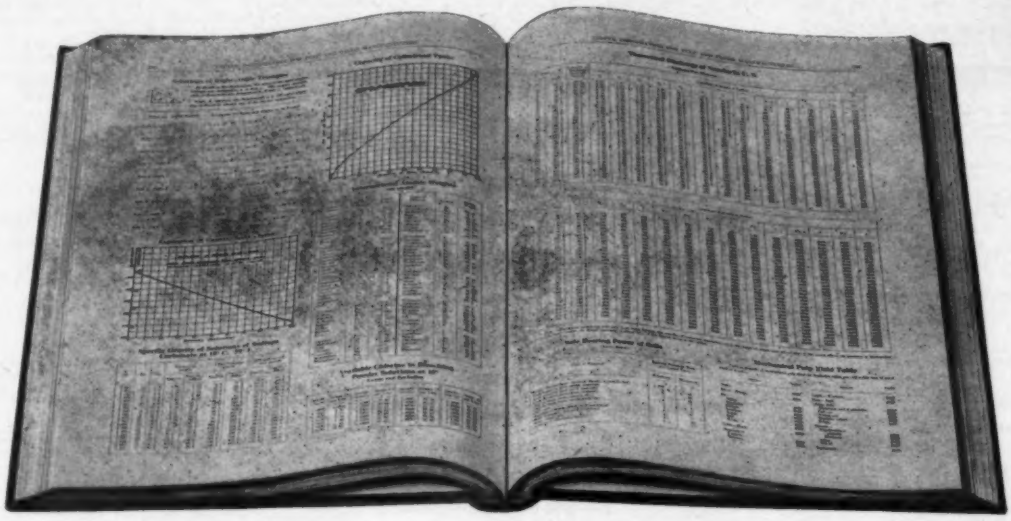

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